FLORIDA WILDLIFE

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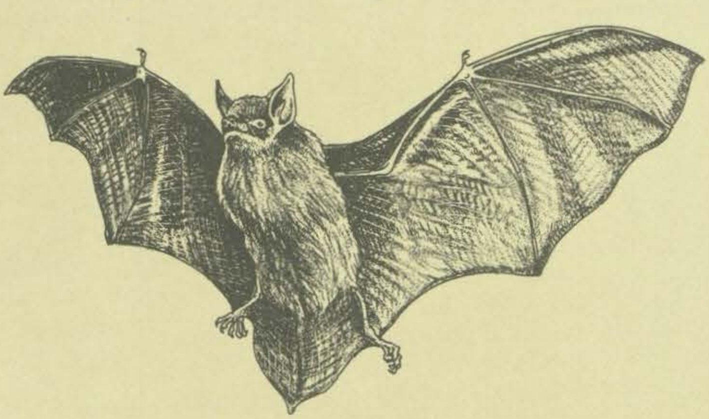
Gray bat maternity caves are protected by state and federal laws. This cave is closed to human entry between:

April 1 and September 30

The gray bat is a federally endangered species. Gray bat numbers are declining because this species is very intolerant of disturbance at its roost sites. During the breeding season (April 1 through September 30), a single ill-timed intrusion may cause females to abandon this cave and their young. Persons entering this cave while bats are present may be arrested and fined.



Please do your part to ensure the survival of this endangered species by respecting the "off-limits" dates.

GAME & FRESH WATER FISH COMMISSION
FLORIDA

See Florida's Gray Bat, page 24 and
Critical Wildlife Areas, page 48.

Volume 36, No. 2
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1982

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Dedicated to the appreciation and enjoyment of our wildlife heritage, and to a fuller understanding of efforts directed toward the protection, restoration, enhancement and wise use of our natural resources.

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THE COVERS

As far as most Southern outdoorsmen are concerned, the Centrarchidae—the spiny-rayed fishes—are the greatest thing that ever happened to the inland waters of the state. But plug-casters, worm-and-cricket dunkers, or fly-and-popper tossers don't worry much about scientific nomenclature: "bream," "bass," and "speck" serve the purpose. On page 11 is a thumbnail guide to the biggies of the group shown on the cover.

COMMON GROUND

By Biff Lampton

The raising of a boy is much like the training of a pointer puppy. Both tend to be curious and innocent, hardheaded but eager to please, brave while at the same time frightened.

And to properly rear either, a great deal of understanding is needed—understanding of the temptations boy or dog must face in growing to maturity.

My father had that kind of understanding. With just the right amounts of love, kindness and loyalty he encouraged his brood toward independence of thought. If he were forced to punish one or the other of us, he did so without malice and always with forgiveness.

A good dog handler will see that puppy training sessions are fun. Constantly forcing lessons on a dog might significantly lower his enthusiasm later on. Daddy's streak of mischief ensured a lively time.

After harassing him without mercy and despite his warnings, he finally agreed to allow me to shoot his old double 12. He knew it was too much gun for me, but he didn't laugh when he picked me up out of the dirt, bloody nose and all. Sometimes boy or dog must learn on his own. And that Christmas, there was a boy-sized .410 under the tree.

A trainer or a father should also be predictable. This trait allows boy or dog to always be aware of his standing and expect praise or punishment in its turn.

My very first sin, or at least the first I clearly remember, occurred early during my educational career. The teacher announced to the class that pencil sharpeners were for pencils only. Crayons, she said, were not to be sharpened in the pencil sharpener.

Naturally, curiosity got the best of me. Since she had neglected to explain why crayons shouldn't be sharpened in the pencil sharpener, I chose a fiery red one with which to experiment.

The pencil sharpener was soon relegated to the garbage heap, its innards gummed and forever scarlet. My backside was likewise colored and when I remember Daddy's admonishment that school spankings would be reenforced at home, my mental anguish was great.

My father's word could be counted on as well as you can count on a puppy breaking his first point. This instance proved no exception. I always knew my standing with him.

He was just as predictable when it came to fishing. Every Wednesday afternoon in the summer he closed the store, ate lunch and we loaded up the boat. If there was a Wednesday that I wasn't invited, I can'trecall it.

It was during those fishing trips that Daddy and I discovered our common ground.

My values weren't always the same as his. A full generation served to separate us and our goals and beliefs differed. No man and his son always see the same issues in the same way. When we fished together, all differences between us vanished.

Today I look back on those times and realize my father and I were not as far apart as my sons and I will be. I grew up in the rural South where the basics had really changed little since his boyhood. Both he and I learned the same things in the same kinds of schools. His friends were my friends. The temptations that challenged me were much the same as those he had faced.

My sons are growing in an urban environment where they will be subjected to all the ills of modern society. They must face the issues of pot and pills, concrete and peep shows, and a confusion of morality more complex than any other generation has yet known.

I won't be able to relate to the school system in which they are enrolled. To see their teacher, one must first make an appointment and the grounds are surrounded by barbed wire. Our leaders say society is more open than ever but, in fact, technology is prying apart father and son more than in any period of history.

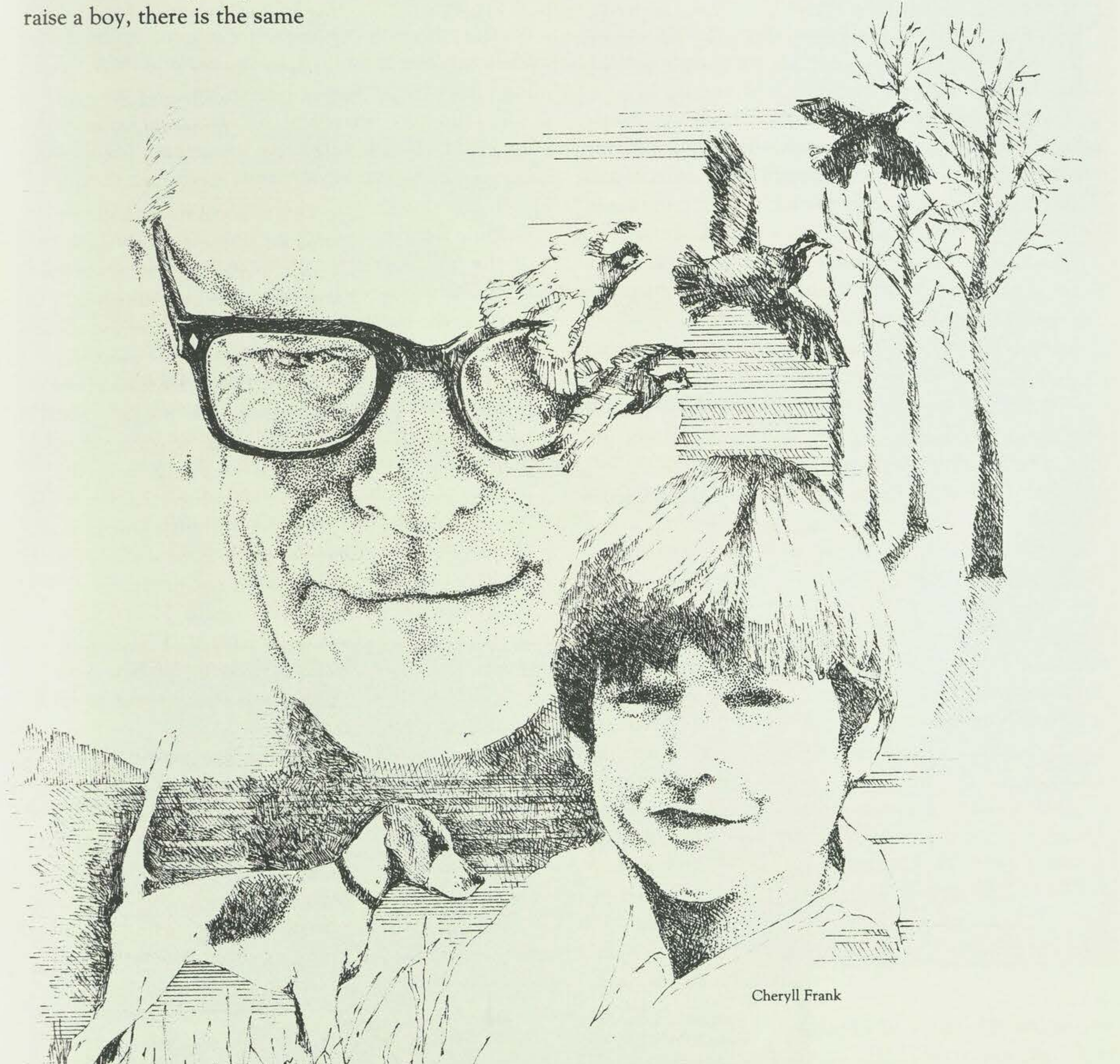
My father died last September and I can no longer seek his counsel. The legacy he left me more valuable than all others was his sharing of our common ground. He showed me how to use it.

To train a pointer puppy one needs wide and open spaces. To raise a boy, there is the same requirement. Therein lies the key, the absolute reason for wild places.

Though all other things might change, a father and son can still find their common ground in the fields, woodlands and waters. Together they can share a sense of exploration and wonder. In the wild lands they can meet on equal terms, communicate and become friends.

I intend to make use of the common ground my father showed me. With my sons for companions, the outdoors will become even more of a fulfilling place than it is to me now.

There is more than a single great and abiding value in the outdoors. I only hope my boys will have it available when it becomes their turn to raise their sons. ■



Cheryll Frank

A rarity - a river that has not yet been despoiled by man, the

OCHLOCKONEE

By Max Hunn

The Ochlockonee River originates as a thin stream in south Georgia, increasing in size before crossing the Florida state line.

Slowing, momentarily, while crossing sprawling Lake Talquin, it continues twisting and turning southward some 75 miles through the Apalachicola National Forest eventually to end its run to the sea in Ochlockonee Bay bordering the Gulf of Mexico.

Today, the Ochlockonee River is a rarity—a stream that has not been heavily damaged by man. It's a river that's almost as untamed as it was a century or more ago when the first white man arrived to settle in the Florida Panhandle.

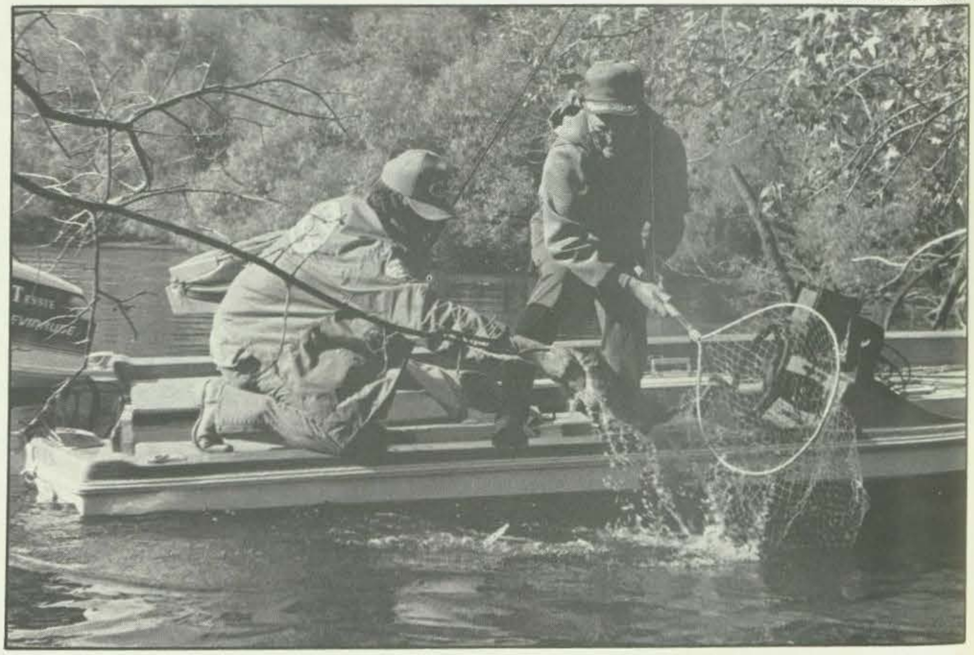
You gain an insight into its wilderness character when you stand at a launching ramp watching the dark river eddy past. It's peaceful at low water, but evidence of its wild nature is everywhere along the banks.

Shattered tree trunks, grotesque weathered stumps, flood-slashed banks, and high water marks on the towering cypresses are graphic evidence the Ochlockonee is an untamed river, wild when flooding, deceptively peaceful when low.

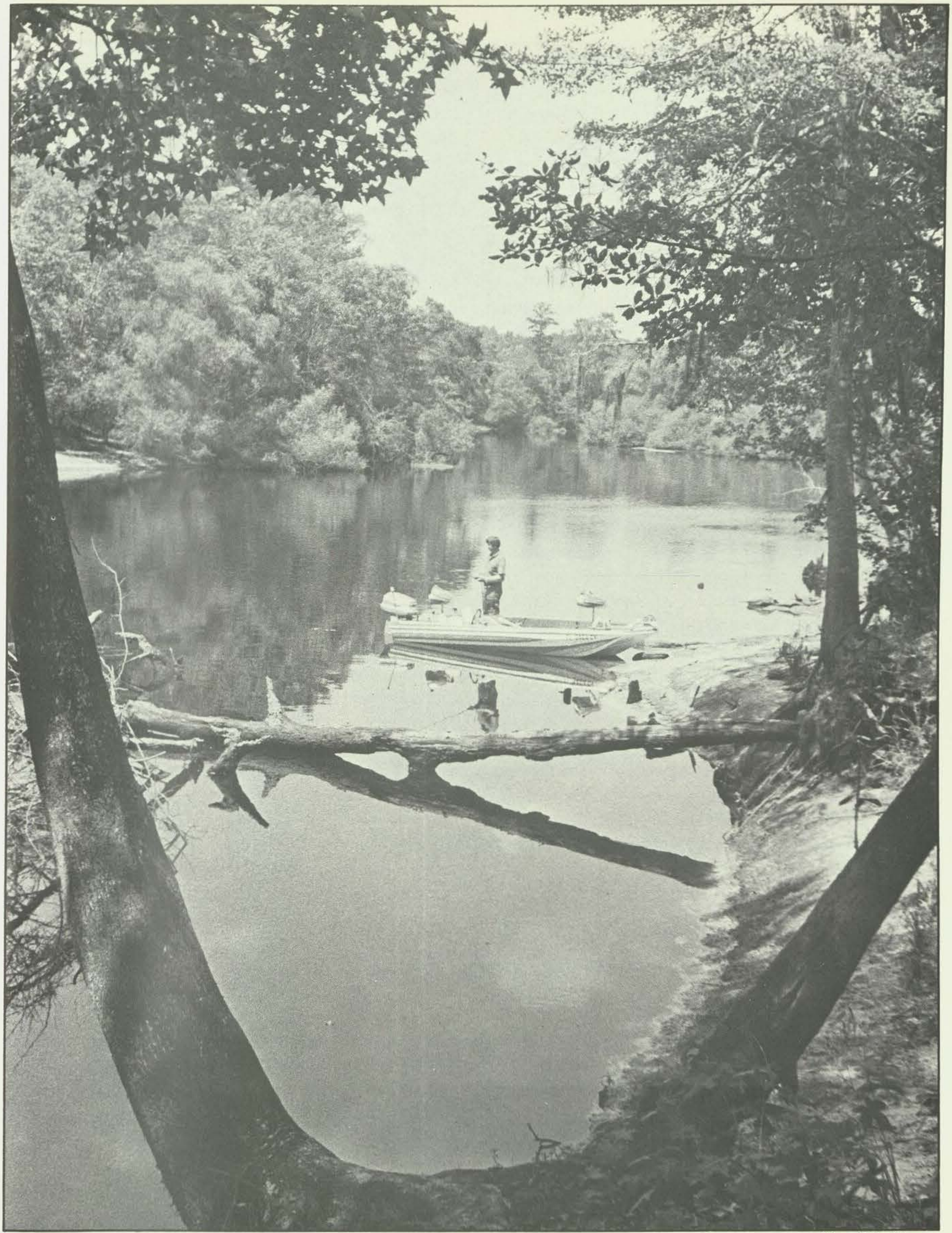
Fortunately, man and his draglines of progress have not yet despoiled this wilderness beauty and, because of the national forest, it is hoped they never will. The lower half of the Ochlockonee from the Talquin dam to the Gulf meanders through the heart of the 557,000 acres of the Apalachicola National Forest which stretches from near Tallahassee, westward to the Apalachicola River. There are no towns along the river, and scant other evidence of the 20th Century until within a few miles of the Gulf coast.

The national forest is one of Florida's last frontiers where wildlife thrive. Deer are often seen along the meager roads at dawn and dusk, and bear prowl the woods, too cautious to be seen often by man. Otter, raccoon, 'possum, turkey and a variety of birds roam the forest. The Apalachicola forest is the home of a number of rare, endangered, or unique species

Kit and Max Hunn



Bob Albritton hand lands a bass from the Ochlockonee as Buck Bray stands ready to assist with net. The Ochlockonee, opposite page, presents a picturesque, peaceful scene as Les Wachter prepares to sample the fishing.



Kit and Max Hunn

including the Southern bald eagle, red-cockaded woodpecker, sandhill crane and alligator.

Yet, despite its wilderness nature, the Ochlockonee offers splendid water recreation for fishermen, boatmen and canoeists. The river provides a 67-mile canoe trail from the Highway 20 bridge below the Talquin dam, to where U.S. 319 crosses the Ochlockonee, a short way from the little town of Sopchoppy.

For those who like their outdoor experiences with a 19th Century, frontier flavor, the river offers rare opportunities. It's a river to be savored slowly. Floating is an ideal way to explore sections of the river. You can float and cruise the entire length, allowing sufficient time for camping out. It's not a river for fast cruising except where it widens near its mouth.

Depending upon the water level, you can explore the Ochlockonee with everything from a 12-foot johnboat to a bass rig to a modern cabin cruiser. However, bigger boats should be used only when the river is normal, neither exceptionally low nor flooding. And, the lower one-third nearest the Gulf is most suited to big boats. When spring rains turn the Ochlockonee into a raging torrent is not the time to sample this wild stream with any type of boat.

Time seems to stand still as you float downstream making cast after cast, momentarily expecting an underwater explosion. Potential fish hideouts—sunken logs, old tree stumps, brush piles, undercut banks and sandbars—are so numerous, a strike seems certain each time you cast. But a knowledge of the river is important to finding fish, particularly the water depths near potential fish hideouts. The river can fool you.

During several trips I made with Lou Hart, Marty Butler, Tony Cox, Les Wachter, Buck Bray and Bob Albritton, this became very apparent. The prime factor in angling success is fishing when the river is right, namely normal (within its banks), or at a slightly low water stage. Too high or too low periods produce poorly.

If the weather is right, the prime time for floating or boating is from mid-March through April and sometimes into May. The prime period is governed by the rainfall along the river's watershed.

For fishing, the river's current is important. You need moving water to score, yet you don't want rapids. Ideally, if you can fish the Ochlockonee when the river has fallen, yet is stabilized with water still draining from the overflow swamps, your chances of success are best.

The importance of water level is understandable, not only from the standpoint of boat handling, but also of angling success. When the river is high or flooding, fishing is poor.

There are huge, overflow swamps bordering much of the river. Bait fish naturally take to the boondocks during flood stage. Fishing the boondock tangle is impossible. Hence, the river must be within its banks or lower for angling success. The fish have to be where you can reach them.

There are some lunkers lurking in the wild waters. Bass as big as 13 pounds have been landed. Just before we made our first exploration, two fishermen landed 17 bass, the biggest weighing seven and one-quarter pounds, according to the operator of Langston's Landing, one of the few private landings on the river. During the same period, another angler boated a nine-pounder.

Ochlockonee bass are deceptive as to size. We boated several that, according to their length, should have weighed less than two pounds. However, these stocky fish weighed from two to three pounds. The river bigmouths aren't long fish, but they are hefty ones for their length, and scrappy.

The river also has a good population of bream, warmouth and catfish.

Crank baits such as Rebel's Deep Wee R or Bagley's Killer B and B-II, particularly in the crawdad and Tennessee shad colors, produce as do spinner baits and plastic worms. Spinner bait skirts can be a variety of colors including white, black, yellow and black, and chartreuse. Worm colors are purple-grape and blue. Many, however, use the old reliable black. Sometimes some exotic worm color is needed.

There are four launching ramps on the river's western bank, Ed and Bernice's, Whitehead Lake, Lower Langston and Hitchcock. The first is a private site with rental boats. The others are good national forest ramps, questionable on extreme low water, located at the end of remote forest roads and not easy to find.

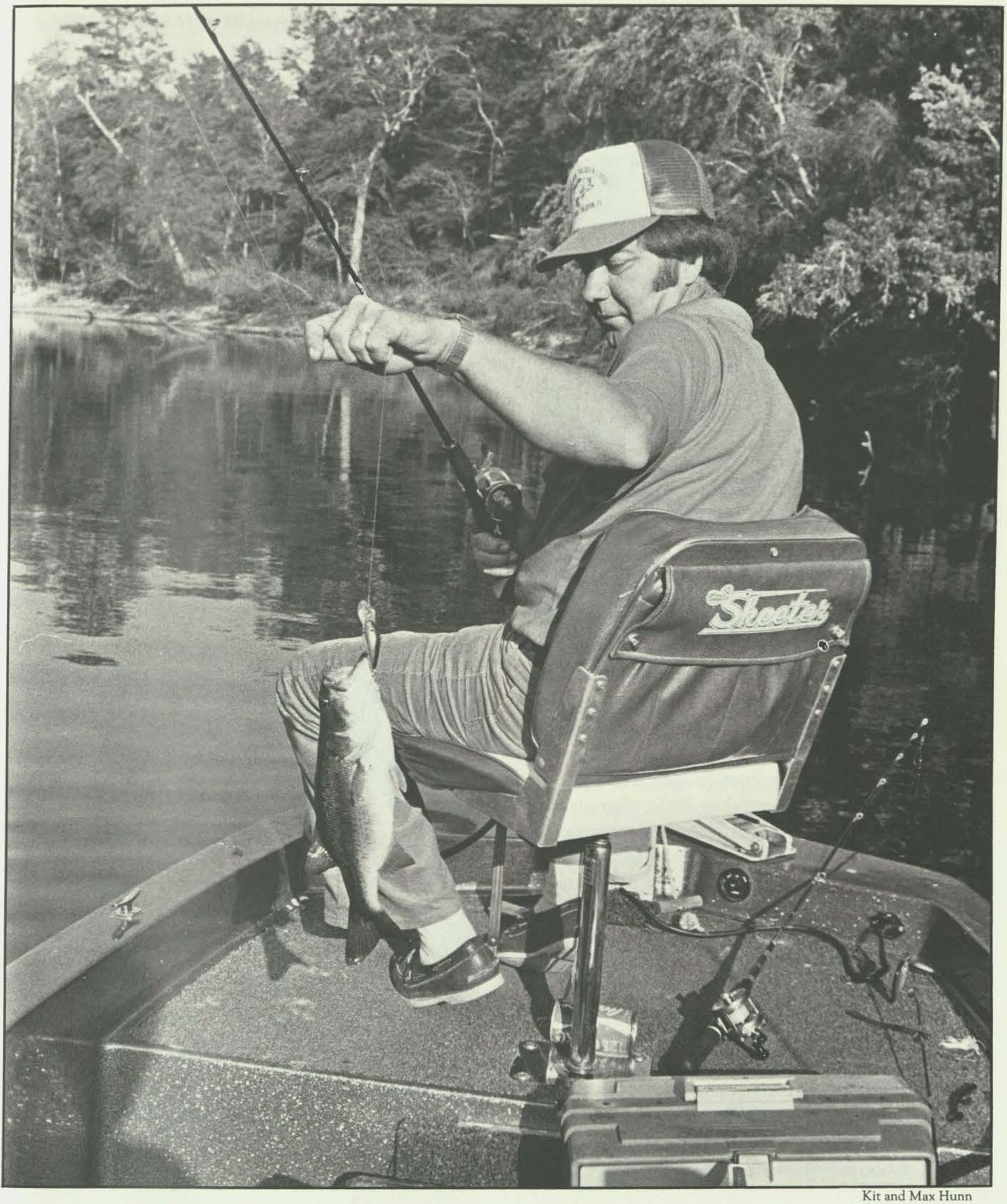
It is probably easier to utilize the ramps on the eastern shore, particularly if you're basing at Lake Talquin Lodge, on the lake of the same name, or other fish camps on the reservoir. These are the nearest overnight accommodations. You can also utilize motels in Tallahassee, 26 miles east of the Highway 20 bridge.

On the eastern shore, which is closely paralleled by Highway 373, there are seven launching sites. They are Troup's at the Highway 20 bridge, Pine Creek, Jack Langston's Place, Ted Roberts and Son, Mack, Silver Lake and Wood Lake. Troup's, Langston's, Roberts and Silver Lake are privately operated. The first two have rental boats. Silver Lake may or may not be operating, and Roberts, too, is questionable.

The best launching site on the upper, eastern shore is the forest service's Pine Creek landing. Its moderate slope ramp is quite usable with any water level.

Langston's is the gateway to some excellent fishing, but it's a steep ramp, and a two-car haul-out during extremely low water. It's not a good ramp for a drive-on trailer during extremely low water.

The two best landings down river are both national forest-maintained. They are Mack and Wood



Kit and Max Hunn

Ochlockonee bass are deceptive - heavier than you'd guess their weight from looking at them. Good scrappers, they will hit crank baits, spinners, and plastic worms.

Lake. Both have paved ramps and primitive campgrounds.

If you plan to explore the Ochlockonee, you should study the Apalachicola National Forest map (50 cents), or the free Ochlockonee Canoe Trail map. These can be obtained from the U.S. Forest Service, P.O. Box 1050, 2586 Seagate Drive, Tallahassee, Florida 32302.

Exploring a wild river, like the Ochlockonee, today is indeed a rare experience. It's one you won't soon forget, and you may want to repeat it again and again. □

FISHING — By CHARLES WATERMAN

Fishing Boats

Since a truly all-around fishing boat would be about 35 feet long, weigh 75 pounds and go 50 miles an hour, I am not going to recommend one, but there are some trends worth noting.

In monitoring catalogs, boat shows, magazines and assorted waters, I am inclined to name the lightweight aluminum bass boat as the biggest current number for inshore and inland fishermen. Those are the ones with all of the bass boat gadgets available, including pedestal seats. They go faster than you need to with motors running from about 25 to 50 horsepower. Practical.

Now the little vee bow that splits a light chop does not make such a boat an ocean-goer, but it's a pleasing outgrowth of the aluminum johnboat. The johnboat is a wonder of efficiency, pretty well taking over from the pram types of a few years back. You can get johnboats roughly the size of aircraft carriers if you want them.

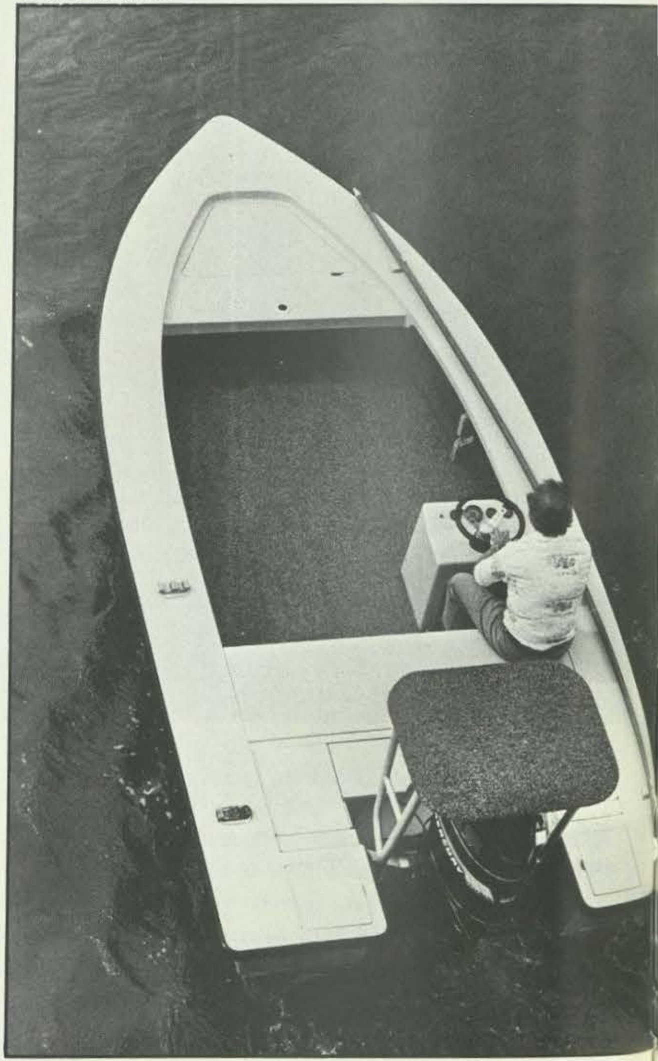
A standard-shape johnboat (which was the papa of all modern bass boats) has little glamour for shoppers and is the straight meat-and-potatoes of fishing craft. I have a Lowe that is 14 feet long and carries a 25-horse motor. I admit this will make you a couple of inches shorter in rough water, but it will take you up the creek right along with a roost-bound curlew. I have used it some for bonefishing and it draws very little water, although that bent shoe box shape is noisy when a ripple hits it. An electric motor darn near runs away with it and it rows with ease.

The newer bass boats that take big engines are real smokers with more comfort than many homes and could be used more than they are on inland bays and rivers. They have become a problem in some of the mangrove snook waters because their efficiency with electric motors and the other gadgets is a little too much for the snook shorelines and their speed compresses the areas.

Bass boats are not made for the open sea, even though the later ones will generally take more rough stuff than the old models, having some vee where it's felt. I have an ancient 18-foot Ranger that goes good with 70 horses and is a marvel for toughness in the mangrove creeks, but I am not kidding myself about the open Atlantic.

"All-around" is a bad word to say near fishermen but the "flats boat" used by many of the Keys guides would probably do better in freshwater lakes than the most bodacious of the bass boats will do out of sight of land. They generally have some freeboard forward and will take a sea without checking its interior. They cost aplenty; partly because they involve some pretty husky construction and partly because they go to a small market. Whereas most of the flats polers like their electric motors at the stern, the freshwater pattern calls for it on the bow—and the flats boats tend to have a rather high snout for the electric motors. But if a bass boat isn't quite salty

Charles Waterman



enough for you, this is a good one to check out. They're built mainly in south Florida.

A few of the big aluminum outboard hulls can be had with fishing interiors instead of sun parlors, and they give you lightness and freeboard. They deserve more attention than they get, but most of the aluminum builders aim at fresh water.

And there are the numbers that I tend to call "Gulf Stream Survivors." Boston Whaler started that business and you'll likely see one of the smaller Whalers so far out you wonder from which coast it came. They float. A Whaler under 17 feet will ride out almost anything, although no boat of that size is especially restful when the shrimp boats are burying their booms.

I have special affection for Whalers and their ilk, but I can name one troublesome feature—with all that flotation and self-bailing you end up short of storage space on the smaller models. This is unimportant for short trips, of course.

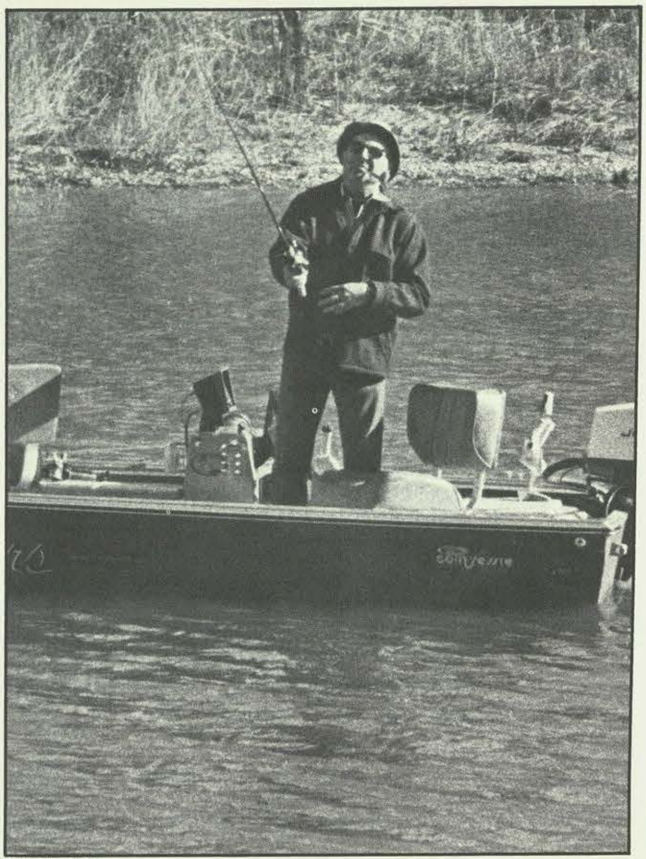
One other type of craft that barely qualifies as a boat but is a practical gadget is what I call a "fishing platform," (although thebuilders come up with much more colorful trade names). It consists of little more than a float with a seat and an electric motor—used for very small, flat water like canals, barrow pits and backwoods ponds. This is an outgrowth of the fishing "bubble" (a sort of super-innertube)and the tiny inflatable life raft. For its purpose, it's almost perfect, but I don't suggest any offshore trips.

Left Or Right ?

Most baitcasters (plugcasters, that is) throw with their right hands and crank their reels with their right hands. After each cast the rod is passed to the other hand and, with fairly light equipment, the reel is generally cupped in the left. If it's a heavier outfit, the left hand takes hold ahead of the reel for more leverage.

From time to time, there have been left-handed casting reels made for left-handed casters but one reel builder recently introduced one that he called a true "right-handed" reel. It is more natural, he explained, to cast with your right hand and then reel with your left—which is the way most spinfishermen do it.

I am sure there is some demand for such a reel, but when I showed it to 80 members of a fishing club, they weren't too enthusiastic about it for right-handed fishermen. They preferred the old way. This may be a matter of habit and they were mostly veteran anglers. It could be that fishermen less fixed in their ways would like it better.



Charles Waterman

Spacious and wide open flats boat, left, is a versatile model. This is a Maverick from Berg Boats,Inc., Ft. Pierce. Commonly used right hand cast - right hand crank method of fishing is demonstrated in photo at right above.

And on a very different reel business:

Strangely, most of the most beautiful samples of the art are fly reels. The single-action fly reel and its drag were relatively simple in construction. The really rugged ones came along when fly fishermen began to play very large fish with regularity and Florida firms produced models like the Fin Nor and the Seamaster. Before that, the fine, heavy-duty reels (such as the old vom Hofe and the Zwarg) were made for Atlantic salmon.

Now there are several very fine heavy-duty reels and some expensive ones made for trout fishing too. These reels, marvels of precision and eye-appeal, will cost from $200 up in the larger models. Chances are a serviceable big-fish reel could be made less expensive, but there's a waiting list for some of the fine ones. But here's the funny part:

A baitcasting or spinning reel is far more complex in construction and, if it were handmade (like the Kentucky reels of 80 years ago), it would cost a fortune. Apparently there is no demand for that sort of thing. You can buy three or four top-quality free-spooling plugging reels for the price of one bar-stock aluminum big-game fly reel. The fly reel price isn't matched until you get into big trolling winches.

Some of this is limited demand, of course, but a lot of it is a matter of the "in" thing. Precision fly reels are "in."

Amber Eyeglasses

In nearly all waters, amber polarized eyeglasses are best for seeing down toward the bottom. Gray ones (neutral) may be best for your eyes, but not for seeing fish.

It's sometimes difficult to get amber in high-grade sunglasses, simply because the physicians prefer a neutral tone. But if you want to fish on the Florida Keys flats or other such places where vision is important—hold out for amber, even if you have to hunt for it. The color of polarized glasses can be the difference between success and failure.

I once fished with some people who were using amber glasses and all I had was gray. The word got around that I was legally blind.

Seeking A World's Record

I tend to yawn when somebody goes forth with the avowed intention of catching a new world's record largemouth bass. From time to time wide-eyed photographers and fishermen have charged off to numerous corners of the globe, promising success. There was the Cuba rush, temporarily stymied by Fidel Castro's politics, and there were those rumors of 25-pound bass the natives had eaten.

I don't know if it has the promised record or not, but Lake Yojoa in Honduras is a good place to look—and for some years the promotion types said that was the place. Then fishing faded a little due to regulation of the big natural lake by locks and power demands. Last spring things looked much better and I got down there with Bob Cloaninger, who runs Trek International Safaris in Jacksonville, FL. Incidentally, that seems to be the biggest sportsman's travel service in the world.

When we were there, Honduras was quiet despite all of the ruckus in El Salvador and Guatamala and ominous sounds from Nicaragua. Lake Yojoa is deep, clear and surrounded by mountains and the climate is fine. The natives fish commercially for bass with plastic worms and handlines, and we saw no other tourist fishermen.

I have wondered about the multi-million dollar hotel that they just might have built in the wrong place a couple of years ago. Anyway, as nearly as I could figure, we were the only two guests on one night. However, there was a week-end convention.

We did not catch a world's record bass. In fact, I didn't catch hardly any bass at all—but then I was engaged in training fish to strike what I thought they should strike at first—and then tried to catch one on a handline the way the natives do. Neither worked. Cloaninger, who is pretty good with worms, caught a bunch of good bass and lost one that had to be a buster. That must have been the world record and it's still there.

I think this is the most beautiful largemouth lake in the world and it comes complete with Mayan ruins, nearby waterfalls and that hotel. Honduras was having no troubles at all, despite some whole-cloth fabrications that showed up in some of the American press. Trek planned to run a new series of trips to Yojoa so I guess I'm giving them some free advertising.

Water Problems

Florida's water problems are so painfully monumental that the general public is inclined to yawn over the complaints of mere sports fishermen, even though they are among the first to sight trouble. The Everglades business, dramatized by the Kissimmee Valley, seems to be a matter of drought begetting more drought. Art Marshall, the respected ecologist, reminds us that what goes up is what comes down and that evaporation takes place only at the surface.

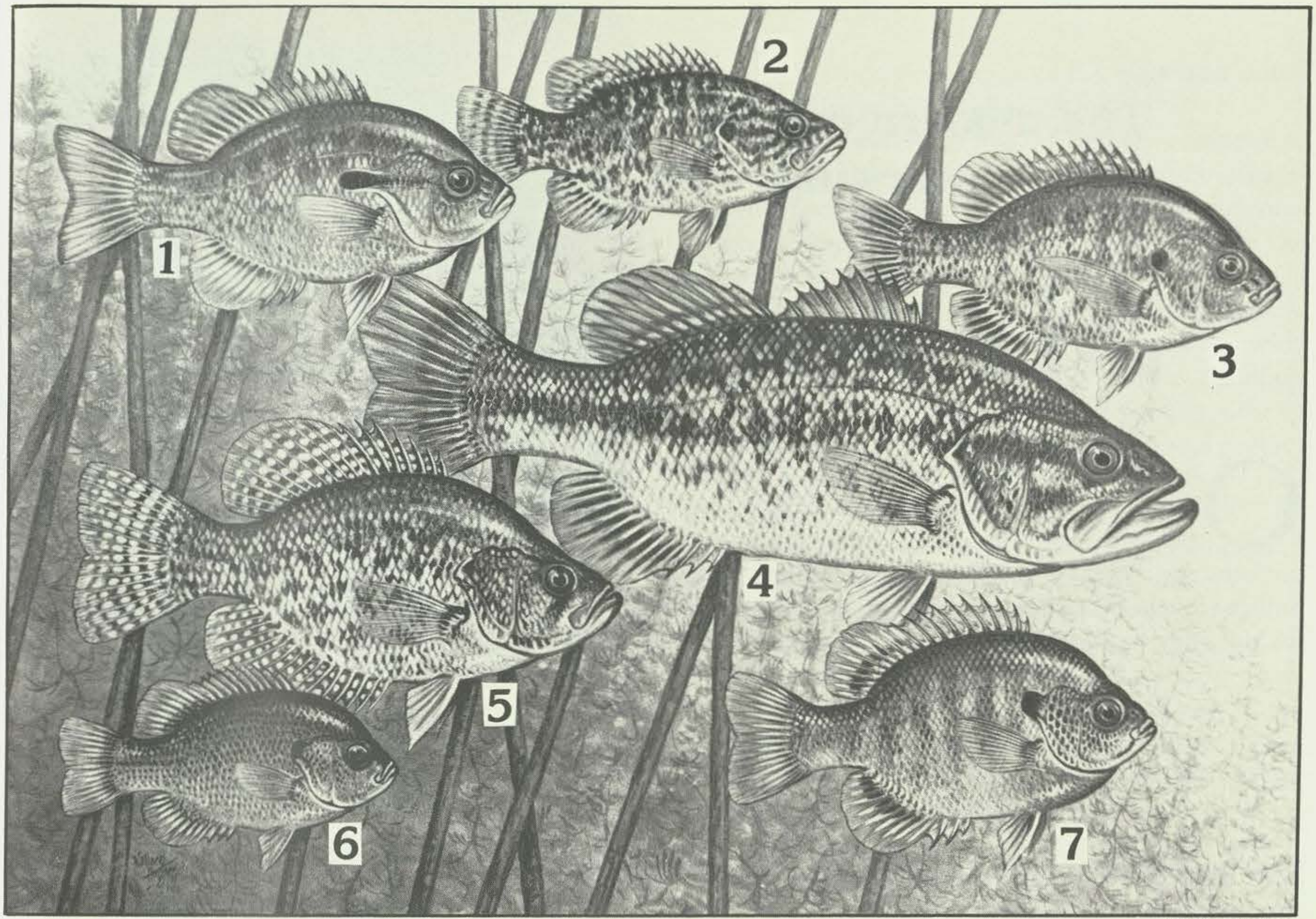
When the Kissimmee River was channelized into a canal, the "sheet water" was greatly reduced and evaporation decreased. Thus, there is less rain over the area. This, going with more water use and more land development, makes an even more unpleasant sum total.

Plastic Worms

Plastic worms, by now established as the world's most efficient artificial bass bait, come in more and more sizes and flavors, but they're also giving some completely new effects.

When they began to give the worm tails fancy shapes to create more wiggle, they really began to add to versatility. I watched a fellow catch some good bass the other day on a "silver" worm. I believe it was made by the Ditto people here in Florida. But the interesting part is that the thing flashed like a spoon or spinner, coming through the water fairly fast.

I guess they've reached the point where an expert could get along with nothing but worms—worms that represent everything from baitfish to lizards. Oh, yes—and worms. □



Wallace Hughes

Centrarchids On The Cover

1. Redbreast—The long opercular flap or "ear" and the bright red, yellow or orange belly mark this fish. Favors moving water. Found in all regions but less common in the more southerly part of the state.

2. Warmouth—The large mouth and the dark stripes radiating from the eye across the cheek and gill cover identify this species. Ranked high as a panfish an eight incher is a big one and four to six inchers are big enough to put on the stringer.

3. Shellcracker—Its preference for snails and other shelled animals which it readily crushes with specialized bony plates in the throat is the reason for its popular name. It is also called redear from the red or orange tipped opercular tab.

4. Largemouth Bass—The glamour fish of Florida's waters, the largemouth is a good fighter, grows to large enough size to put meaning to the term trophy, is persnickety enough to offer a challenge for the angler, and is excellent on the table. Florida record is 18 pounds.

5. Speckled Perch—To fishermen elsewhere this may be a black crappie but most any Florida fisherman calls him speckled perch or speck. Found throughout the state, except for the keys, live minnows and small white jigs are the usual speck medicine.

6. Stumpknocker—This is the spotted sunfish. Small but feisty, a six incher is a good one. Widespread in the state, but usually found only in clean moving water with plenty of aquatic vegetation.

7. Bluegill—Readily taken on a variety of baits and lures, this scrappy fish is excellent table fare. The side barring, dark opercular spot, and the dark marking at the rear of the dorsal fin identify this ever-popular panfish.

The modern concept of multiple land use is working at its very best on

St. Joe Lands

One visit through the Panhandle of Florida and it becomes evident that timber is big business here. Thousands upon thousands of forested acres at varying stages of growth are being utilized for the production of lumber and pulpwood. In no other company timberlands is the modern concept of multiple land use better epitomized than on St. Joe Paper Company holdings.

All too many people, it seems, stand ready to write off timberland management by large companies as an endless round of clearcutting, drainage, soil disturbance, pine monoculture and the like. A more considered look at St. Joe operations, however, shows a brighter picture to those concerned with the state's wildlife and forest-related recreation.

With more than one million acres of Florida timberlands under its control, St. Joe is listed as the 14th largest corporate landholder in the nation.

For years, St. Joe has been a leader in the open lands concept, leaving virtually all of its holdings open for public recreational activities. In addition to its general public use approach, some 395,000 acres are enrolled under the Game and Fresh Water Fish Commission's Type I wildlife management area system. In fact, St. Joe is one of the pioneer wildlife management area cooperators, working with the Commission for more than 20 years. St. Joe Paper Company properties in the Type I system comprise most or all of four wildlife management areas: Aucilla, 70,000 acres in Wakulla and Jefferson counties; Robert Brent, 95,000 acres in Liberty and Gadsden counties; Edward Ball, 65,000 acres in Gulf County; and Point Washington, 165,000 acres in Bay and Walton counties. Each area is somewhat different in habitat and recreational direction.

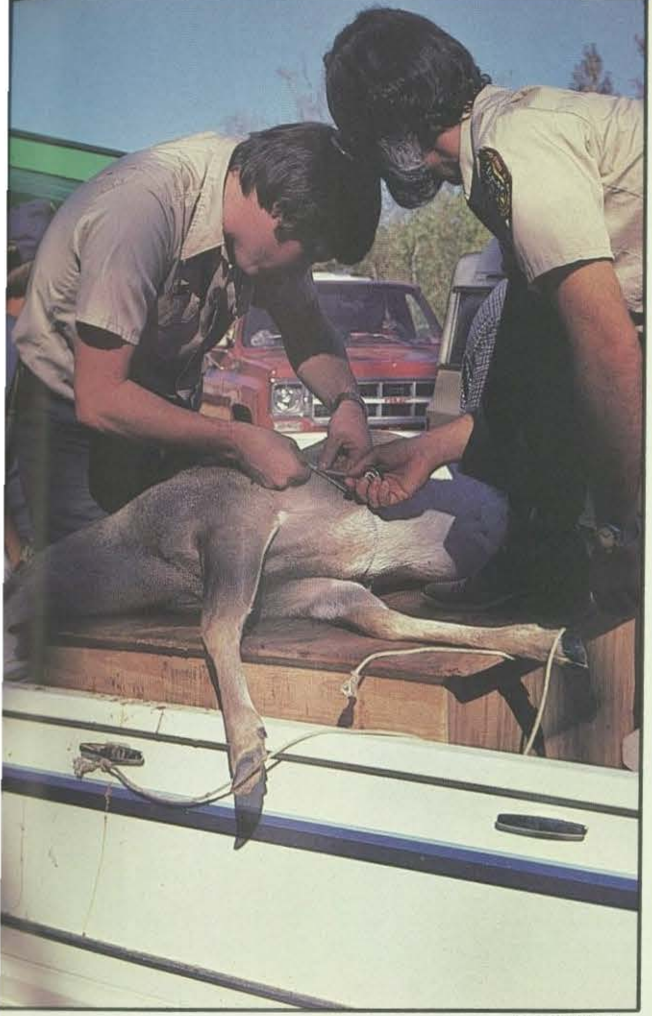
A primary objective for all St. Joe lands—controlled recreational use—is funded and staffed by both cooperators. Rules are developed, physical improvements made and manpower for management and enforcement is committed for use on St. Joe Type I lands. Much Commission activity centers around controlled access during recreational use periods through check stations and gated roadways. Not only does this provide public access control but also hunter pressure information and biological data are acquired. Reliable knowledge of who, what, when, where, and how of the resources is necessary to make possible the application of sound wildlife management.

Habitat manipulation, as it relates to timber and wildlife enhancement, is a main ingredient of the cooperative relationship. In recent years investigations of plant species providing road stabilization and wildlife use have been undertaken. This approach provides not only soil erosion control but also habitat enhancement and less costly maintenance of roadways—a major expense to most land managers. The net result would be better environmental quality concurrent with increased carrying capacity for wildlife.

The use of fire is being increased on St. Joe lands to benefit both wildlife and timber. Approximately 5,500 acres on the four wildlife management areas were burned by March this year. Prescribed burning during all seasons and in all age classes of timber has been the best tool for habitat enhancement on a dollar/acre basis; and on just under 400,000 acres of timberland, keeping management in perspective with manpower and budget is a paramount task.

Another mutually benefiting project has been the aerial application of super phosphate fertilizers on pine timberlands. It has long been established that soils low in phosphorous, as are the coastal plain sites of Edward Ball and Point Washington wildlife management areas, will react positively with an application of fertilizers high in phosphorous. This reaction in soil chemistry has greatly improved the growth rate of pine trees. What's now being discovered is this fairly inexpensive method of improving soil conditions on a large scale not only enhances

Management specialists Randy Simmons, left, and Gary Weber, collect biological data from whitetail buck brought through check station. Fire, lower right, used as management tool, helps both timber production and wildlife.



Stan Kirkland

pine timber but also increases the vigor and nutritional quality of key wildlife plants.

Not only is the St. Joe Paper Company receptive to innovations in wildlife management but also it actively participates in preserving some of the components of pristine Florida. Examples include the preservation of at least 40 acres around eagle nests where no cutting is permitted. On recreationally usable waterways, a buffer zone at least 100 feet wide is preserved to prevent erosion and to maintain water quality. The preservation of nesting sites of ospreys in the Lake Wimico swamp area and protection of vital habitat for scattered colonies of red-cockaded woodpeckers are other examples. The management policies of the St. Joe Paper Company have proved to be not only of *take* but also of *give* in regard to the natural resources of the state.

Continued cooperation and the wise investment of ideas and money will only lead to a better stewardship of our wildlife resources on lands owned by St. Joe Paper Company. ■

By Bill Bartush

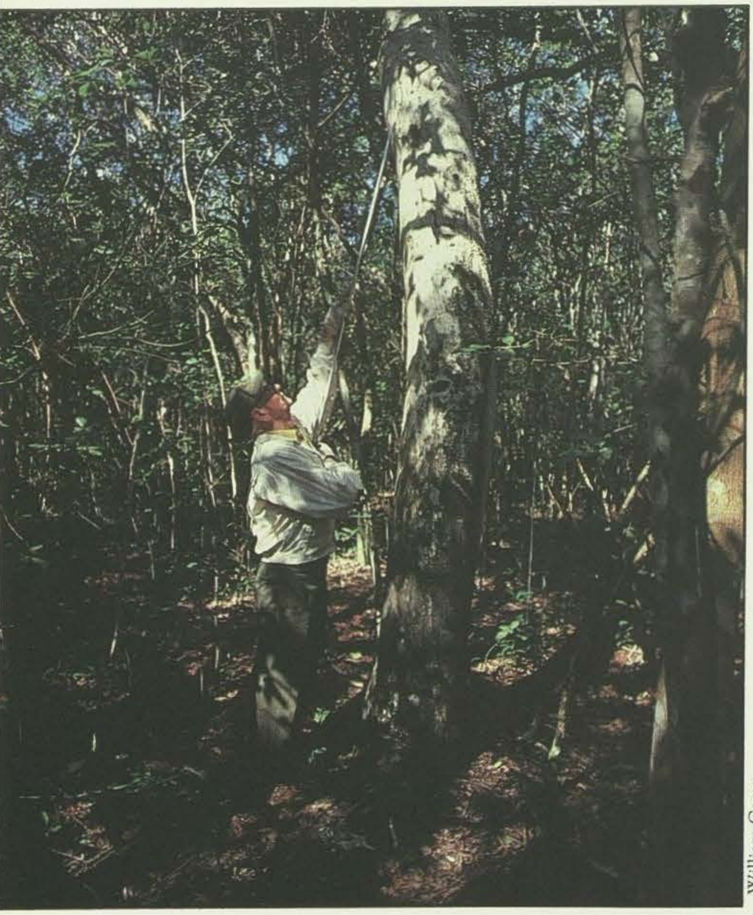
Biologist, Division of Wildlife

Bill Bartush

There is a special fascination about tree snails and the unique area in which they dwell.

GEMS of the Everglades

By BEN CULVERHOUSE JR.

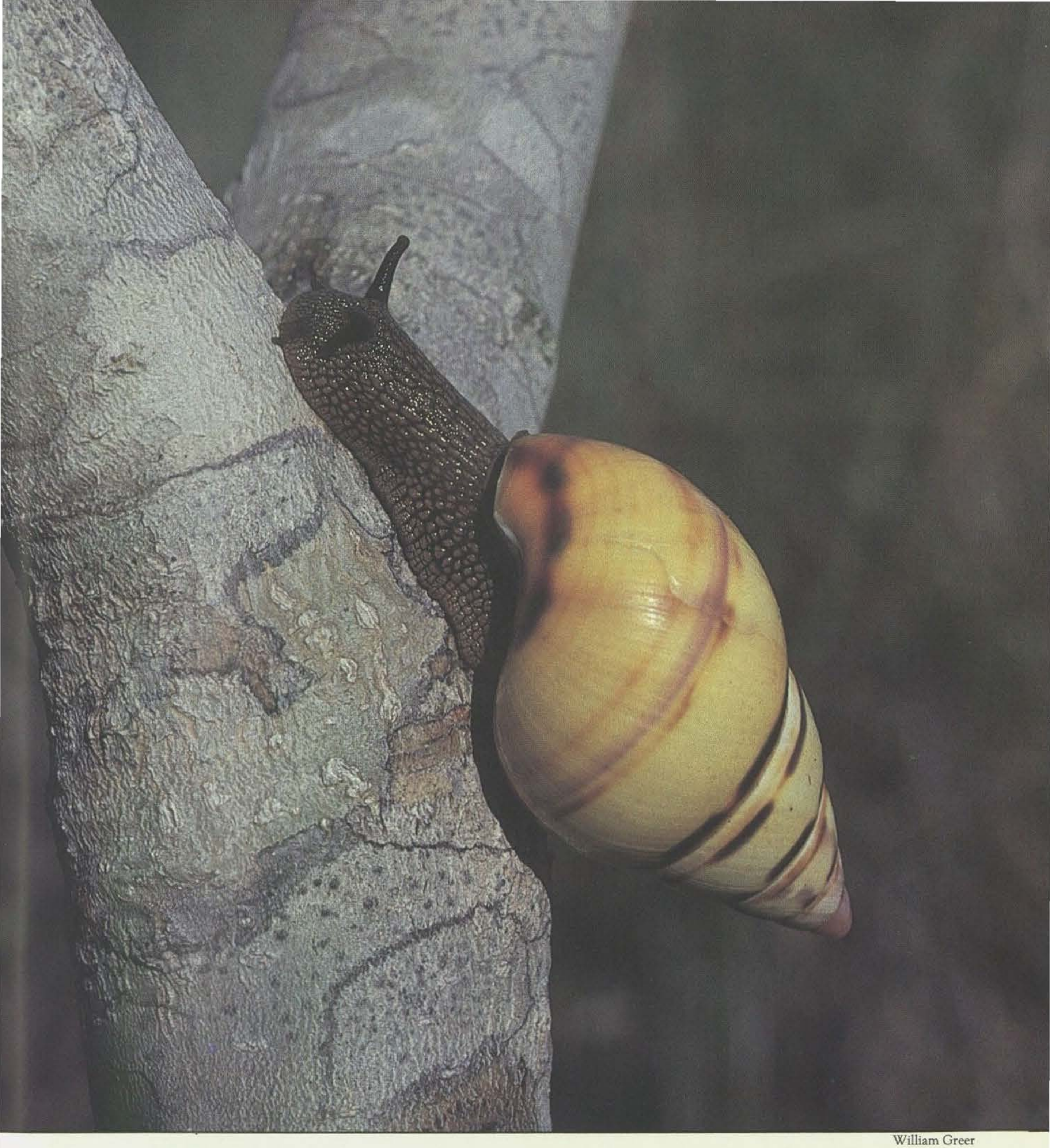


William Greer

One of the most dramatic Florida ecosystems is the Everglades. It is a vast wilderness of sawgrass dotted with island-like hammocks, cypress forests and an occasional stand of sabal palm. The "River of Grass" provides habitat for countless species of animals and plants, all dependent in some way upon the unique qualities of this special environment.

Of all the creatures that dwell here, one of the most colorful is the brilliantly banded tree snail, *Liguus fasciatus*. For good reason they have been referred to as gems of the Everglades. These colorful mollusks reside in hardwood hammocks clinging to certain types of trees where they wander about in search of food. In the genus *Liguus*, species *fasciatus*, there are 58 color forms located and formally named to date. These locations or "type localities" are places in which each of the forms was first discovered.

During the past several years, some of the most enjoyable hours of my life have been spent in the 'Glades and Keys searching for and studying the magnificent *Liguus*. I have been involved with marine shells for many years; however, I must admit the enjoyment and knowledge derived from my association with tree snails far surpasses all other shelling



William Greer

adventures. There is a special fascination about this marvelous creature and the unique area in which it dwells.

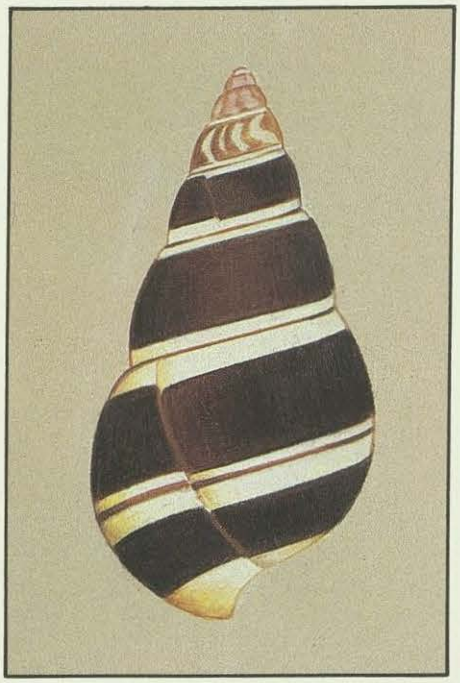
Liguus had its beginning thousands of years ago on the Isle of Cuba where 60 or so forms originally existed. These snails were ancestors of the Florida varieties. Down through the centuries, they found their way to the Florida Keys by various means, most probably during hurricanes, clinging to floating trees or being transported by members of an ancient civilization.

Interior of a hardwood hammock, opposite page, home of the tree snail. Lichens are the primary food of the snail. Favorite trees are Jamaica dogwood, tamarind, and poisonwood.

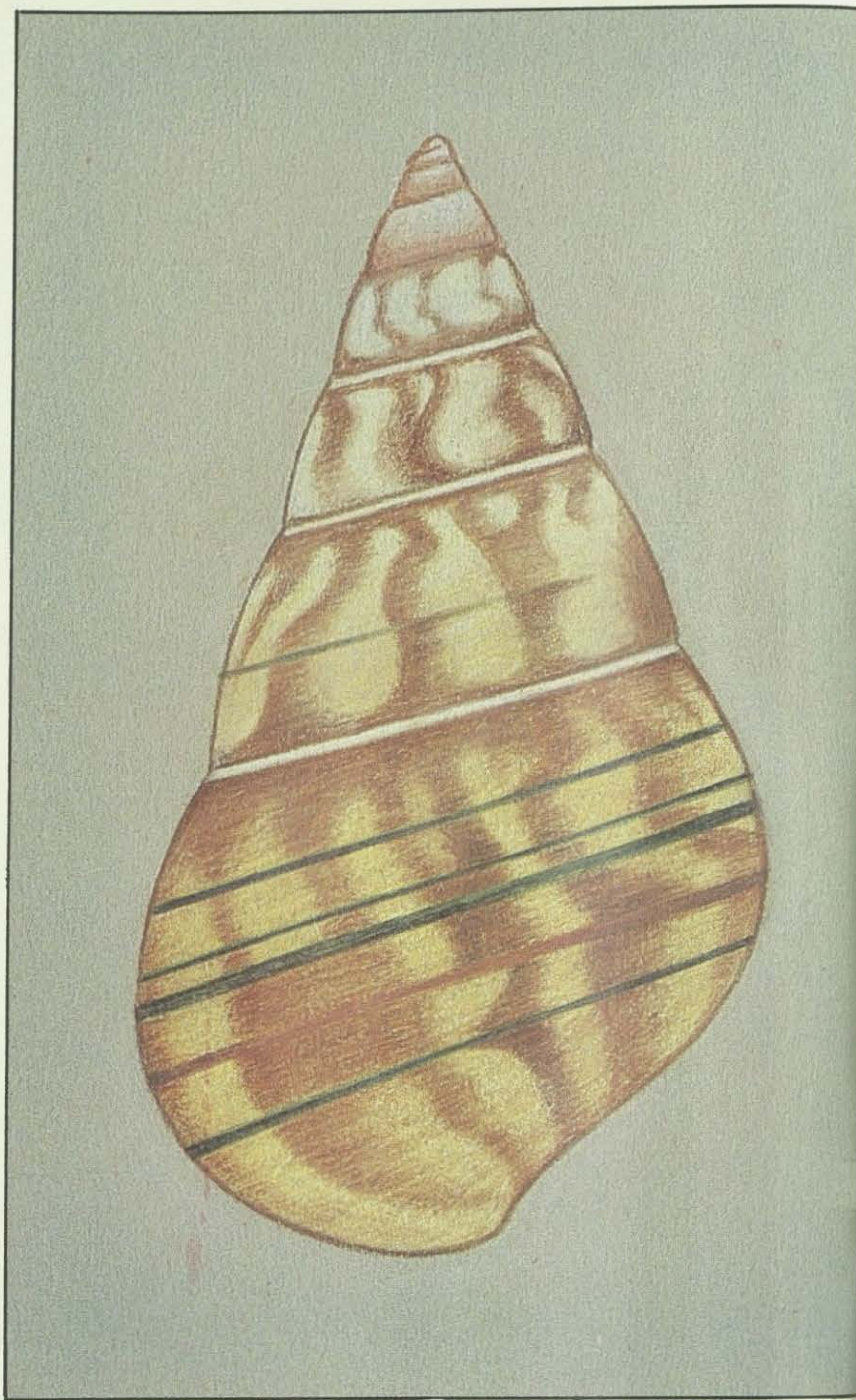
Today, colonies of *Liguus* range over nearly the entire length of the Keys extending onto the main-

GEMS of the Everglades

Some 58 color forms of the tree snail have been identified to date. Here are a few of them with the type locality - the place from which they were first collected.



L. f. castaneozonatus, Key Largo.



Liguus fascinatus wintei, Long Pine Key.

Art work by Ben Culverhouse

land of south Florida and including most of the southern Everglades. These arboreal snails inhabit hardwood hammocks of many types of flora. Their favorite trees, however, are the Jamaica dogwood, in the lower and middle Keys; the tamarind and poisonwood, which grow in the upper Keys and throughout the Everglades. These trees support an abundance of lichens, the primary food for the tree snail.

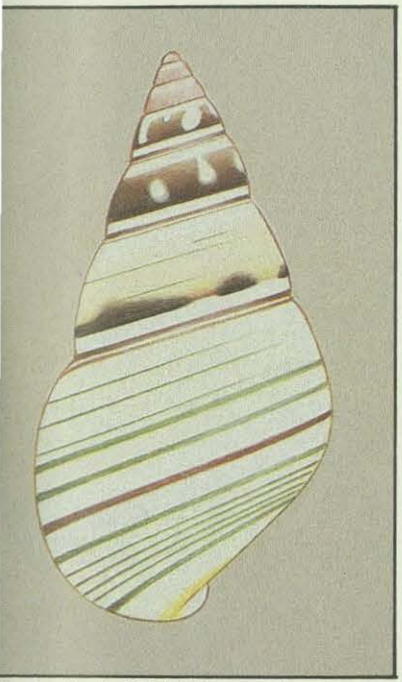
Liguus mate in late summer, usually in September, followed by an aestivation period in which they seal themselves to trees within hammocks for the short winter rest period. With early spring rains, the *Liguus* again become active and start the feeding and growing process. During this same time, egg clutches, deposited in the soft ground the previous fall, begin to hatch and the new snails—they're called "buttons" at this stage—begin their journey to the treetops eating their favorite food as they go.

The life span of the tree snail is four to five years, but they occasionally live seven years or more with the maximum growth rate in the first years. As an example, a one-year-old snail with adequate food might grow one complete whorl per year, but the same "Lig"at age six would probably grow less than half a whorl. Some forms of *Liguus fasciatus* consistently display thin green lines or pariostracum on their later whorls while others show only intermittent lines or none at all.

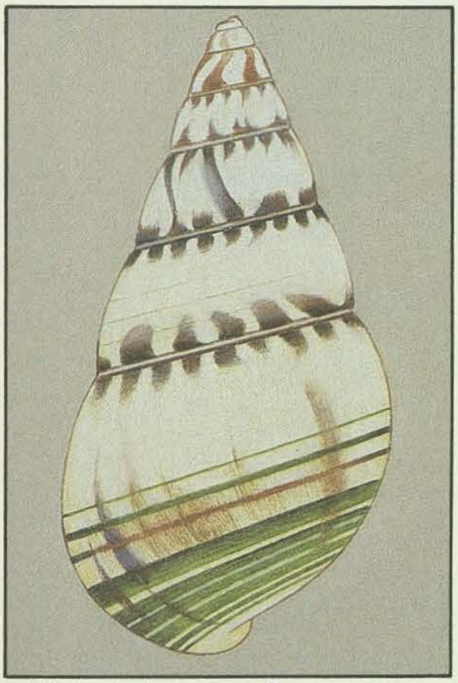
The tree snail probably owes its existence to the efforts of a handful of people who, for the past 40 years or more, have devoted immeasurable hours to preservation of the population. Perhaps the species would have survived, at least as a remnant population, without their efforts but at least the more uncommon forms would have disappeared—victims of fire and other causes. The determination of this little group of snail-conscious conservationists was instrumental in pushing for legislation to regulate the collection of *Liguus*. Protection from collectors by Everglades National Park is effective also, and most of the various color forms found on the area are protected by the National Park Service. There are 40 or so forms recognized from the Everglades and Keys.

Whether you are interested in just seeing the Everglades or actually observing these handsome snails in their natural habitat, a trip to the Pinecrest region is well worth the effort. The Everglades is one of the last frontiers of its kind in this hemisphere and represents an important link with the past—and future as well. ☐

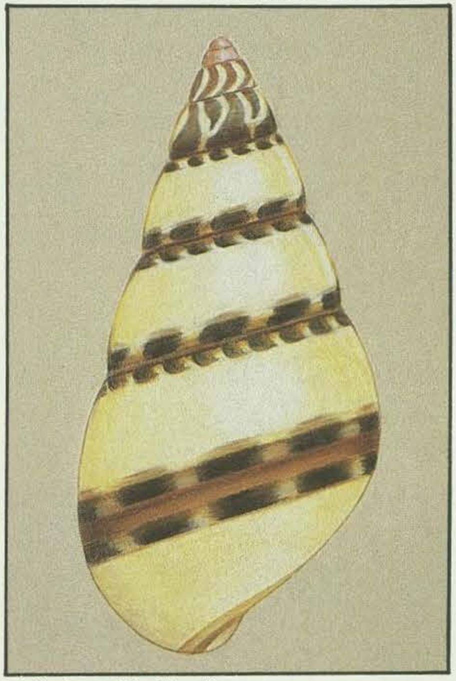
Art work by Ben Culverhouse Jr.



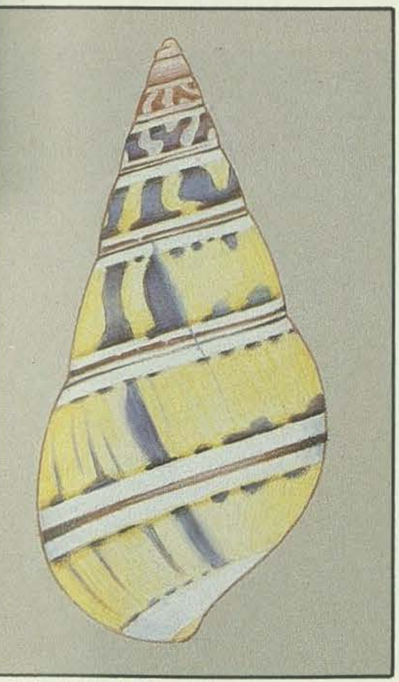
. miamiensis, **Brickell Hammock**



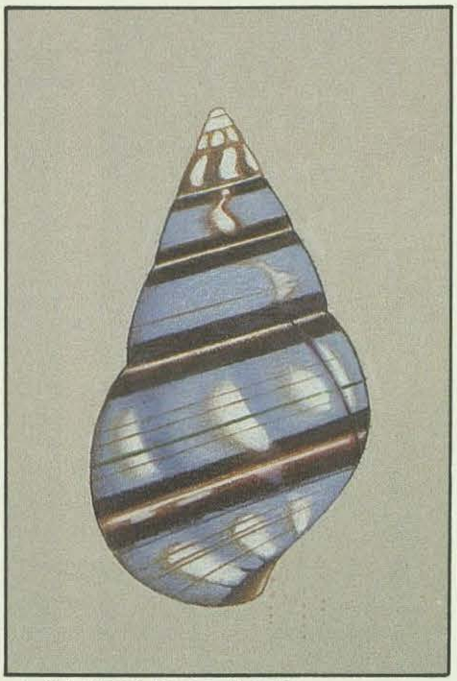
L.f. pseudopictus, **Lower Matecumbe Key.**



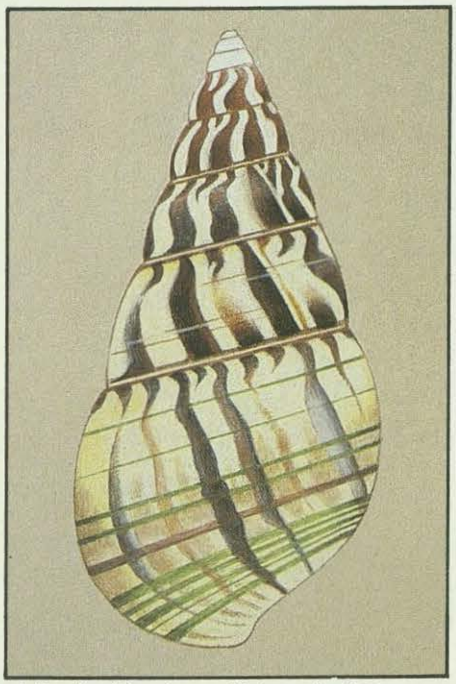
L.f. pictus, **Big Pine Key**



. graphicus, **No Name Key.**



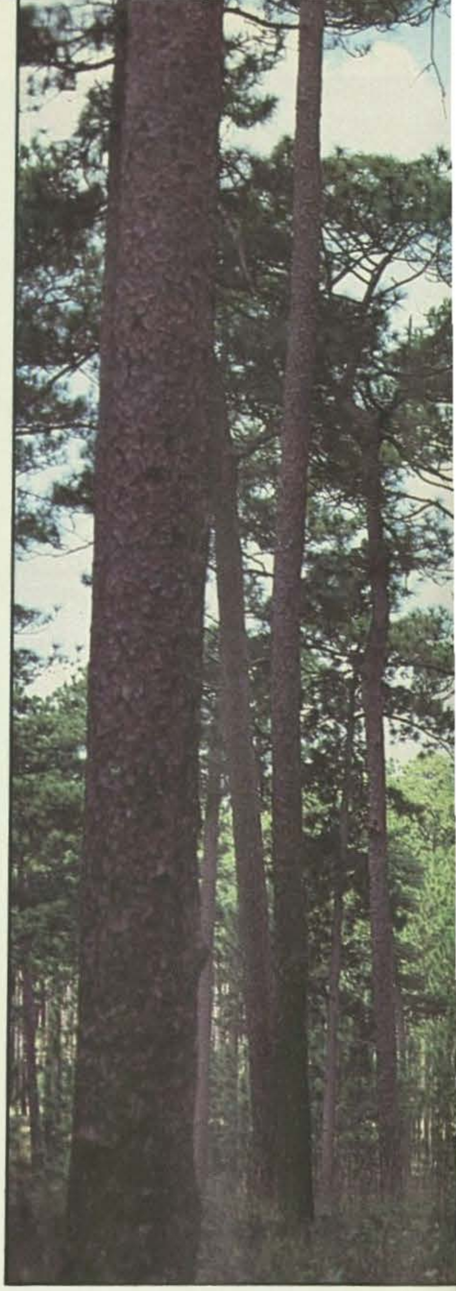
L. f. barbouri, **Pinecrest region.**



L.f. splendidus, **Lower Matecumbe Key.**

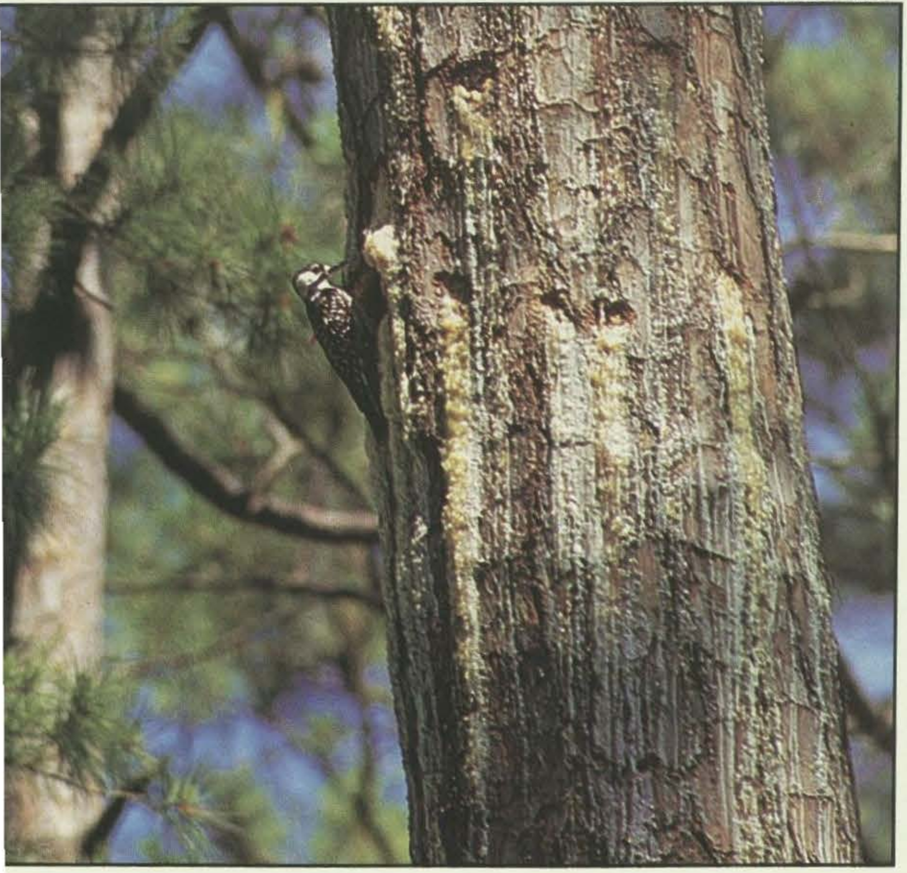
One-third of Florida's land surface is covered by

PINEY WOODS



Remnant stand of original longleaf pine, right, with clear, open ground cover. Note widely spaced tall trees. The red-cockaded woodpecker, below, at nest tree, is specifically adapted to mature pine forests. Pine woods, below right, with palmetto ground cover.

Wallace Hughes



Neal Eichholz

Neal Eichholz

Florida has more than 34 million acres of land surface and almost one-third of this (about 11 million acres) is covered by pine forest. These forests are characterized by one or more species of pine as the dominant tree and, in Florida where most of the terrain is on level ground, pine woods are often referred to as "pine flatwoods." Long-time residents and native Florida crackers commonly call these areas "piney woods."

When white settlers first came to America, the pine lands stretched almost unbroken along the low southeastern coastal plain, punctuated only by an occasional river, lake, stream or swamp forest. The vast pine forests were maintained and manicured by natural fires that periodically burned and pruned the grass and shrubs that grew beneath the pines. Over thousands of years, pines and other fire-tolerant plants became linked and perpetuated by the natural cycle of fire. The hardwoods, however, were not so resistant to fire and survived primarily on poorly drained zones where the land was too wet to carry a fire.

Fire in the pine woods would usually scorch only the lower few feet of the taller trees and rarely inflicted the charred and destructive scenes portrayed in popular fire prevention advertising campaigns. The ground cover beneath the open pine forest received good sunlight and included more grasses and fast-growing plants that provide combustible

By Neal Eichholz

Biologist, Office of Environmental Services

Neal Eic

PINEY WOODS

fuel for the natural fires. Summer fires from lightning swept this plant layer clean and resulted in a park-like condition unlike the pine woods we see today. The famous American naturalist, William Bartram, described Florida's magnificent pine woods in the late 1700s as "level, open, airy pine forests, the stately trees scatteringly planted by nature, arising straight and erect from the green carpet, embellished with various grasses and flowering plants."

Even the wind has a unique and different sound as it courses through the needles of a stand of 100-foot pines.

In the early to mid-1900s, open pine forests were used by Florida's cattlemen to graze free-ranging cows. Burning the pineland ground cover stimulated rapid new growth that is tender, nutritious and a favorite forage for the woods-roaming cattle. Fire also helped to control disease-carrying insects and to maintain the forest as a natural pasture. This clean, open area provided extensive panoramas and reduced the cowhands' difficult task of searching for wild and far-ranging woods cows. Cattlemen altered the natural burning cycles by starting winter fires. Such winter burns had a pruning effect and provided new and tender forage during the season when natural

James C. Greene

foods were in short supply. Over the years, these winter fires changed the natural composition of the grasses and shrubs. It is believed that palmetto, gallberry and other species gradually took the place of grasses and flowering plants that Bartram described during earlier times.

From the mid-1900s until the present, the timber industry has drastically changed both the pine species and the ground cover in pine woods. Removal of virgin pines and the prevention of natural forest fires gave way to a new and resurgent forest that was dense and fast growing. The advent of site preparation and the introduction of artificial reforestation further changed forever the character of Florida's native pine lands.

The widely spaced 200-year-old towering stately pines, interspersed by younger trees and dead or dying ones, were replaced by pure stands of even aged trees usually less than 50 years old. Even the species have changed as the native longleaf or "yellow pine," as the locals called them, have been replaced by artificial stockings of slash, loblolly and sand pines. Intensive ground preparation and close planting techniques result in a dense, thicket-like growth of grasses, briars and woody shrubs. The dense ground cover eliminates space for important wildlife food plants such as blueberry, running oak, wild pea and lespedesa, and inhibits use by many native wildlife species that live in the pine woods environment. Young trees also have less wildlife value because they have almost no cavities for nest holes, are more resistant to disease and, therefore, do not attract insects that are a food source for wildlife. In addition, older pines produce more mast (pine seeds), an excellent food for a variety of wild animals.

Some wildlife species have evolved with and are specifically adapted to pineland habitats. The endangered red-cockaded woodpecker is so tied to the mature pine forest that the small bird will only nest and roost in cavities carved into the heart of aging living pines infected with a particular fungal disease. Other birds and mammals which lack the ability to excavate pine wood make use of these cavities when the woodpeckers vacate.

The endangered, or perhaps extinct, ivory-billed

Neal Eichholz

Dead pine with natural cavities, above left. Such pines provide insect food and nesting places for wildlife. There are few such places left in Florida pinelands. Bluebirds, left, prefer mature pine habitat. Their population has dropped in recent years. Reforestation, above, by planting slash pine after intense site preparation. Note the dense growth.

woodpecker was known to feed on insects found in dead and dying mature pines and the elimination of these old forests undoubtedly contributed to the ivory-bill's demise. Other less conspicuous birds are so characteristic of pine environs that they are found nowhere else. White-breasted and brown-headed nuthatches, pine-woods sparrow (Bachman's sparrow), pine warbler and bluebird prefer Florida's more mature pine habitats. Bluebird populations have steadily declined in Florida and many of the less noticeable species are suspected of suffering a similar fate.

James C. Greene

Fox squirrels are closely aligned with pine forests and have a strong preference for the clean, open, lawn-like condition that was common in the original pine forests. The decline of fox squirrel populations in Florida is directly related to the changing nature of these habitats.

The pinesnake, coachwhip snake, pinewoods treefrog and the frosted flatwoods salamander are among the reptiles and amphibians that have a strong affinity for pine associations. Even more numerous are the birds, mammals, reptiles and amphibians which utilize pine woods on a seasonal or infrequent basis for nesting, food or cover. Some of these include game species such as bobwhite quail and wild turkey.

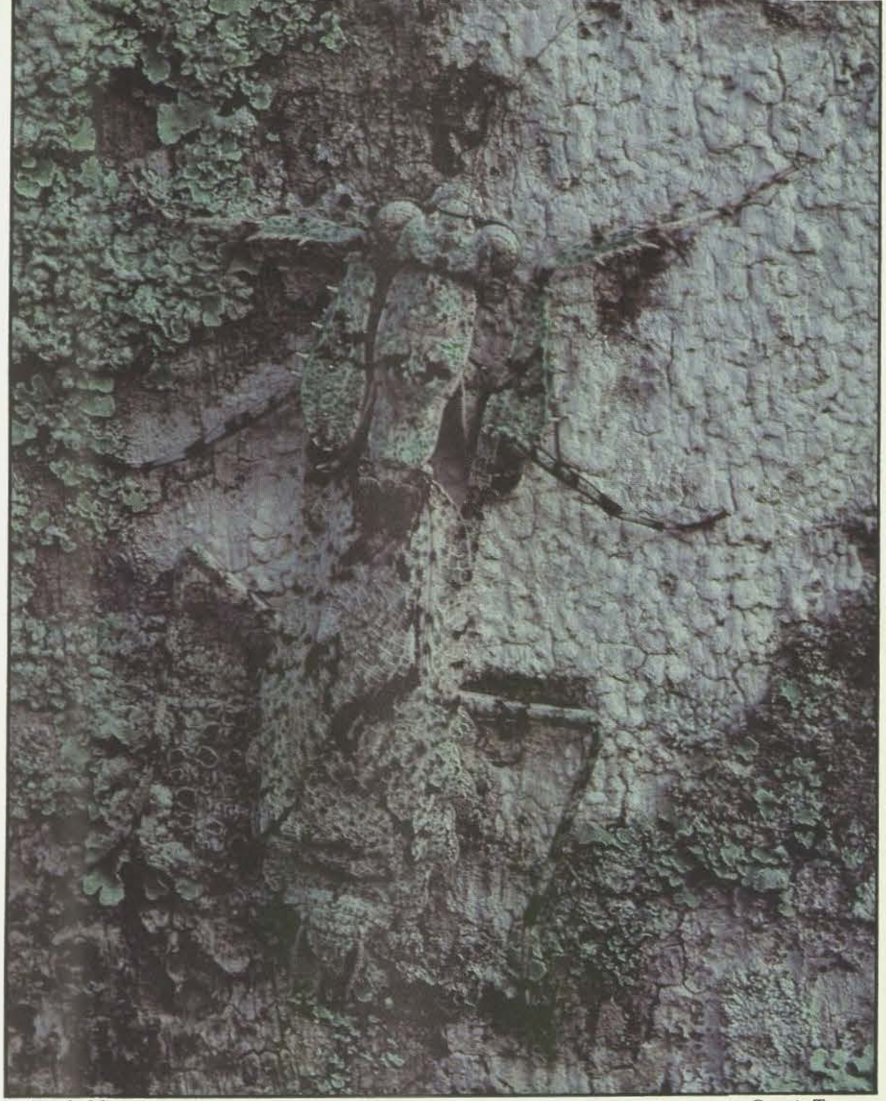
The wildlife, plants, and the scenic vistas of the old growth pine woodlands are in shorter supply than the wildlife values of our much maligned wetlands, but there are no laws to protect these habitats.

Privately owned tracts of mature pine woods have practically all been cut, developed or permanently altered. Florida's three national forests and the Blackwater State Forest have the largest remaining publicly owned tracts of relatively unspoiled pine woods. These public forests have been better managed than private lands, but are rapidly being cut, site prepared and manipulated by man. Although these forests are not as grand as those found by our forefathers, they are about all the "piney woods" heritage we have to pass on to future generations.■

PINEY WOODS

Among the many species of wildlife that prefer the piney woods are the pine warbler, above, and the pine snake.

Ed Conklin



Bark Mantis

Connie Toops

LOOKIN' LIKE A LICHEN

By Connie Toops

What has six legs, more than 200 eyes, and looks like the bark of a palm tree? In south Florida, the answer would be *Gonatista grisea*, the bark mantis.

The bark mantis seems to have an affinity for the trunks of royal palm trees. These stately palms have slender, urn-shaped bases with tufts of lush green leaves at the very top and are native to the Big Cypress and Everglades regions, where the warm, humid climate provides excellent growing conditions for lichens. Lichens are crusty patches of plants which often cover the palm trunks. These combinations of simple algae and fungi cells grow on the palm bark without damaging the tree and it is among these lichens that the two-inch-long bark mantis lives.

Bark mantises are so perfectly camouflaged that they seem to melt into their surroundings. Their bodies are colored in the same blotchy green pattern as the lichens and, since they seldom move, mantises are nearly impossible to see. That's what makes them such successful hunters. A mantis will lie motionless in wait until an ant, beetle, or other insect crawls within striking range.

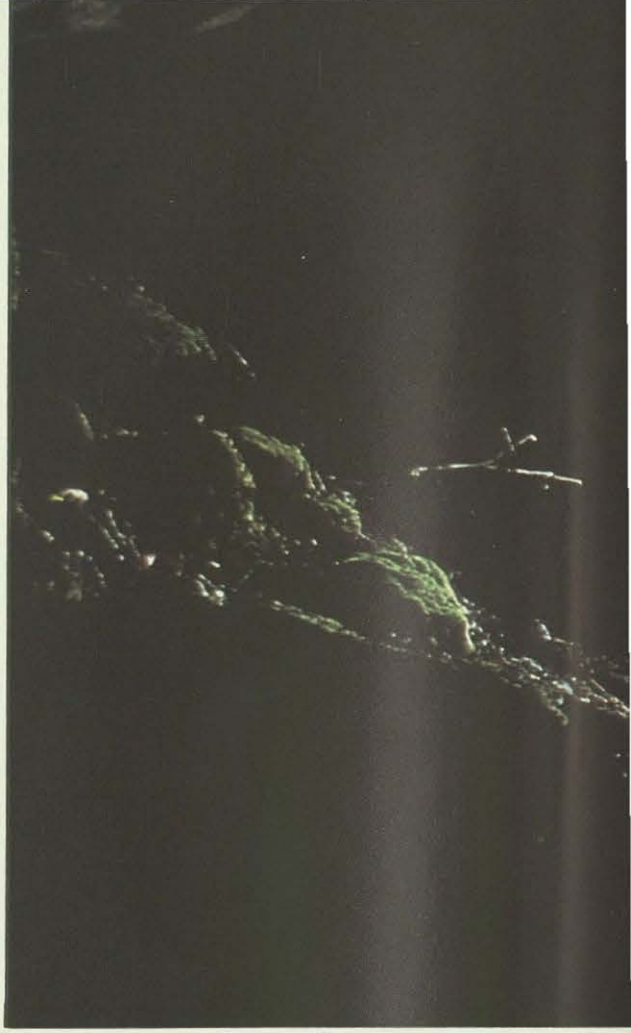
The mantis detects movements through its compound eyes. Each bulging eye is made up of a hundred or more tiny components that gather light and transmit images to the insect's brain. Mantises have a wide field of vision and once they notice an insect scurrying toward them, they freeze until it is close enough to grab. Then, with lightning swiftness, they lash out using barbed forelegs to capture the prey.

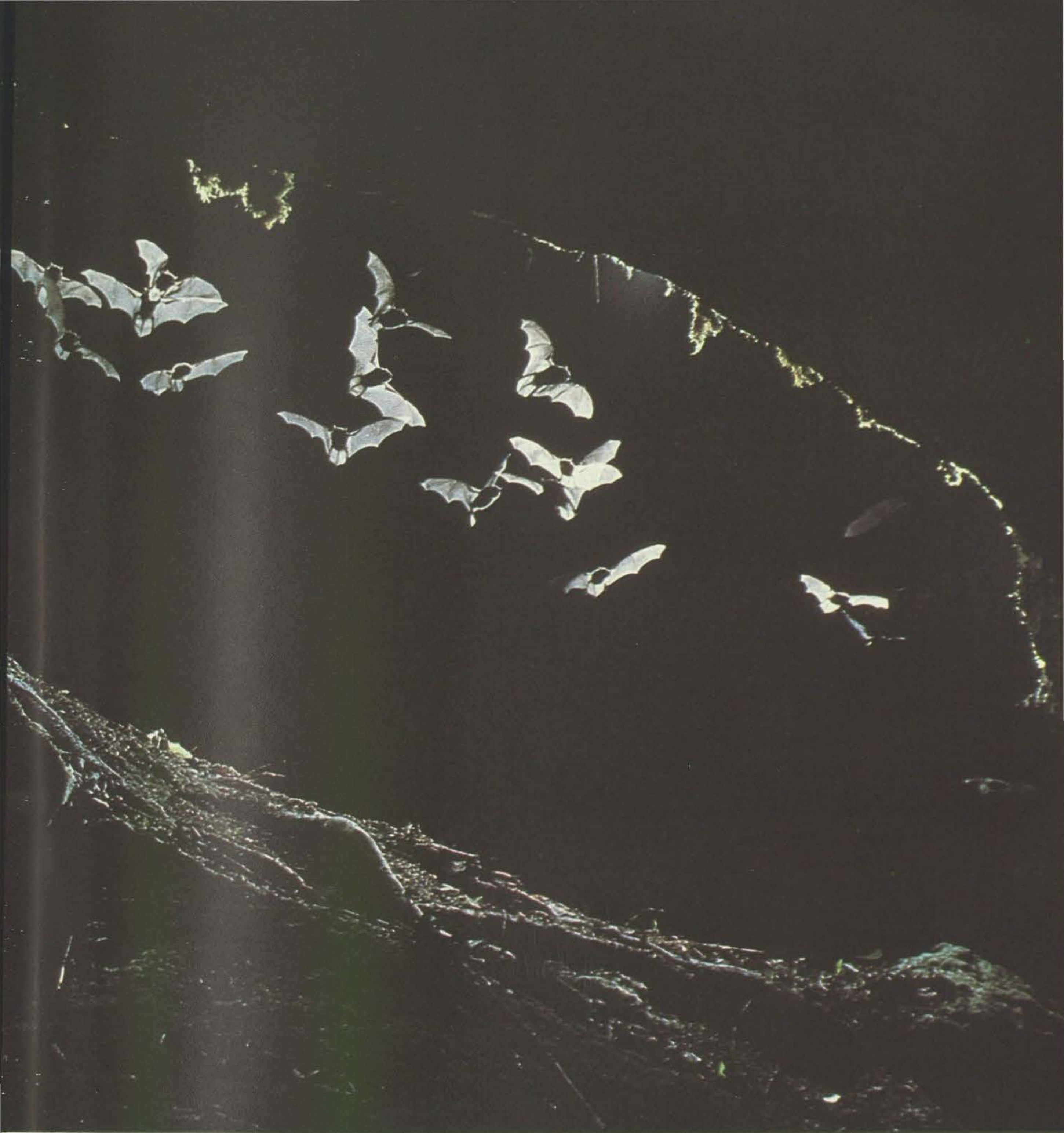
More than 1,500 species of mantises are found world-wide. Many of them resemble bark, leaves, twigs, or other bits of vegetation and they have voracious appetites for consuming other insects. This brings them great favor among gardeners and agriculturists as methods of natural pest control. Because of their curious shapes and habit of holding their forelegs in a prayerful manner, the ancient Greeks believed mantises held magical powers. The name "mantis" comes from the Greek word meaning prophet or soothsayer.

The bark mantis is a little-known member of the south Florida ecosystem, but its unique habits and excellent camouflage rank it among the most interesting. The next time you pass by a palm tree, take a moment to search the trunk for one of these multi-eyed insect-eaters. You may discover a fascinating new world of tiny plants and animals. ☐

FLORIDA'S GRAY BAT gets another chance.

It was a stormy, rainswept night, the sort of night no sane person would have ventured out into for any reason, much less the one I had in mind! I was crouched gingerly on a limestone outcrop just inside the entrance to a cave, trying to keep dry. I wondered fearfully whether the boogieman would slither out of the dark recesses of the cave, or if he planned to leap upon me from above. It was 20 minutes or so after





On the federally-complied list of endangered species is the gray bat, *Myotic grisescens,*left. Bats at the entrance of a Jackson county cave are shown in the photo above.

sunset and, in my spooked condition, I didn't know whether to anticipate or to dread the event I had been waiting on for over an hour.

My vigil came to an end when a tiny presence, more sensed than seen or felt, flitted by my face. Others followed and the cave soon filled with odd, clicking sounds and the dry, papery rustle of wings. Silhouetted against the cave mouth were myriad ghostly forms of those much-maligned creatures—bats. Ironically, the 200 or so bats I counted that evening were much more sensible about staying out of the rain than I had been. The majority of them

By Anne Shapiro • Photos by M. D. Tuttle

Biologist, Division of Wildlife

Unless otherwise credited

GRAY BAT

buzzed around the cave entrance, while a half dozen or so "scouts" darted in and out to assess flight conditions. The scouts must have had discouraging news because, gradually, they all retreated into the black interior of the cave from which they first emerged.

Last summer, I initiated a study, part of the Game and Fresh Water Fish Commission's endangered species program, to determine the status of the endangered gray bat *(Myotis grisescens)* in Florida. This rapidly declining species inhabits certain caves throughout the Southeast but here it is known from only one small complex in Jackson County near the Chipola and Apalachicola rivers.

During the breeding season, pregnant gray bats congregate in "maternity" caves (males and non-breeding females roost separately in "bachelor" caves). Gray bats are extremely intolerant of any intrusions into these caves. A single human disturbance at a roost between March and August can incite spontaneous abortion in pregnant females, or can cause panicked mothers to knock their young onto the cave floor. These blind, hairless babies often drown or are attacked by mites, beetles, rats and other cave inhabitants. Still worse, females will often abandon a cave and their offspring if harassed, to take up residence in less suitable caves elsewhere. Under the suboptimal conditions in these caves, successful rearing of young may be difficult or impossible. Female gray bats do not reproduce until their second year and they only bear one young annually. Needless to say, reduced gray bat colonies take a very long time to increase in size.

I had braved the rain, the dark and the boogieman to find out whether any bats were breeding in a particular maternity cave that night. Since I could not risk disturbing the colony by entering the cave interior, I had to content myself with watching the cave entrance during evening emergence time. Twilight is the hour in which these bats arouse and venture out to feed on insects over the nearby river. I was elated that 200 bats still inhabited this cave, but I was also very alarmed. An estimated **20,000** bats once bred here, and approximately 2,000 of them were gray bats. The remains of a campfire and numerous beer cans, sardine tins and other litter attested to heavy human use. It was a safe bet that most bats had abandoned the cave because of frequent disturbances and that the 200 stragglers were probably all southeastern bats *(Myotis austroriparius)*, the gray bat's more easy-going relative. Since 1967, at least four maternity caves in addition to this one, once occupied by from 5,000 to 30,000 bats each, have been abandoned because of intrusions and vandalism.

During the winter months, gray bats seek out the coldest caves (called "hibernacula") in which to hibernate. In balmy Florida, only one or two Jackson County caves get cold enough, so most of our gray bats migrate more than 350 miles to a cave in northern Alabama. Gray bats are also very vulnerable to human disturbance during hibernation. Each winter intrusion which results in arousal (and most do) can cause a bat to burn up to 0.2-0.3 grams of precious body reserves that cannot be replenished before spring. Frequent disturbances can easily cost a hibernating gray bat its life.

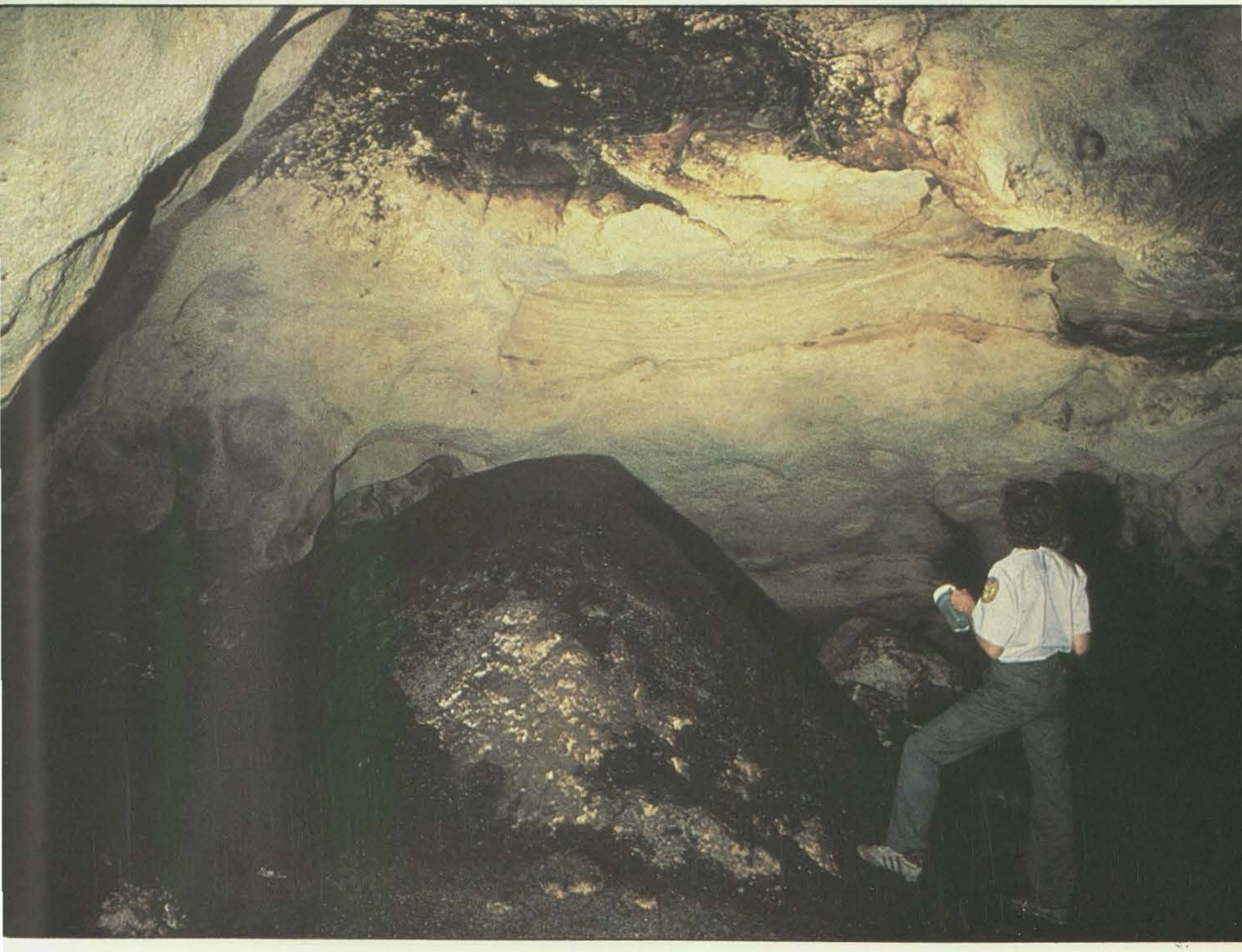
In addition to human disturbance, obviously the major cause of endangerment of the gray bat, habitat destruction has also played a major role. Since 1967, two Florida maternity caves have been bulldozed shut and another that contained thousands more bats was cemented shut.

The ultimate objective of my project, to protect and, indeed, to increase Florida's population of gray bats, has certainly raised some eyebrows. To most people, bats are verminous, rabid pests, about as lovable as cockroaches and as cuddly as pit vipers. They are supposed to have a peculiar affinity for belfries and love nothing better than to entangle themselves in one's hair. But consider the following facts:

- A gray or southeastern bat can eat up to 1,000 insects in a single night. Therefore, just one of the Jackson County colonies containing 100,000 bats is capable of putting away 100,000,000 insects nightly! Gray bats can live as long as 30 years. That is 30 years of free, natural insect control.
- Bats make ideal laboratory specimens. For example, researchers are learning how the human circulatory system works by observing that of bats. Blood vessels can be seen easily through their thin wings.
- Cave-dwelling bats bring nutrients in the form of guano and carcasses into the relatively sterile interior of caves. Blind crayfish, cave crickets, pack rats, beetles, cave fish and a host of other life forms that dwell within are directly dependent upon them for survival. Eliminate bats from a cave and you eliminate these organisms as well.
- Since 1946, only 10 Americans have died of bat-transmitted rabies. More people are killed annually by coconuts falling on their heads. Dogs bite more than a million people and kill an average of 10 or more each year.
- Man is directly responsible for the endangered status of the gray bat. Do we really have the right to cause the extinction of this harmless, beneficial mammal?

The first phase of my project involved locating and determining the status of all gray bat caves in Florida. Bat watching at sunset gave me a good indication of whether, and how many, bats inhabited a particular cave. If a colony was reduced in size or had abandoned a cave, my next step was to determine

Clustering of 100,000 bats created this enormous guano pile in cave, below. Bat urine, guano, and oils from the bats' fur have stained the cave ceiling black. Ammonia-rich atmosphere has bleached this female southeastern bat's fur, leaving patches of orange, left.



why. Wherever possible, I then attempted to prevent human entry into each gray bat cave.

This year, the Commission adopted a rule such that caves could be established as "critical wildlife areas" upon the request of the landowner. Human entry is prohibited and anyone caught inside such an area can be prosecuted for molesting the bats. Critical wildlife areas are posted and patrolled by wildlife officers. The cave I watched that stormy night now enjoys this protected status, and it's hoped, the bats will return there in greater numbers to breed unmolested this year.

There is only one major gray bat maternity cave in Florida. This cave harbors 10,000 gray bats and 90,000 southeastern bats. It has what is probably the largest bat colony of any cave in the Florida Panhandle. Because this cave which is essential to the survival of the gray bat in Florida is threatened by development, the Commission is attempting to purchase it. The Commission plans to include a wooded corridor of about 35 acres to the river in the purchase. Young gray bats feed in vegetation around cave entrances. They learn how to catch insects and perfect their flying skills near the safety of their roost. As they get older and wiser, they fly, along with the adults, below the forest canopy to the river. These bats will not fly out in the open because hawks, owls and other avian predators congregate nearby during emergence times to make an easy meal

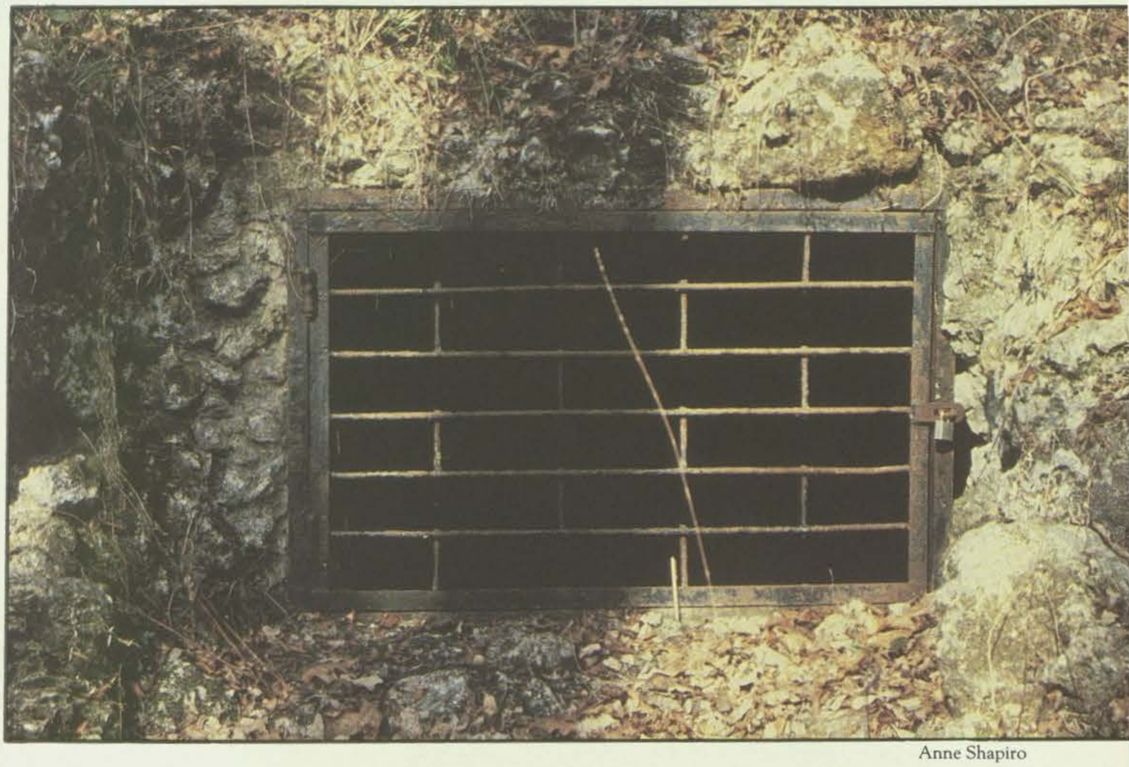
M.D. Tuttle

of them. After acquisition is finalized, the cave will be posted and patrolled and a fence will probably be installed around the cave mouth.

Cave entrances throughout the gray bat's range have been gated to keep people out but, for a number of reasons, this is not advisable for Florida caves. Gray rat snakes, pack rats, owls, opossums, raccoons and other predators will concentrate in astonishing numbers around bat maternity caves. It has been determined that gate gratings force bats to slow down while entering or leaving a cave. Predators take advantage of this and even use the gratings as a handy perching site for their bat catching activities.

Another problem associated with gates occurs during the winter hibernation period. Gates significantly obstruct airflow through Florida caves. Higher cave temperatures result, rendering the caves too warm for successful hibernation. One such hibernaculum in Florida was gated and its very large bat colony subsequently stopped using this cave. Gating is being removed and a fence will be erected instead. It is hoped that gray bats will return once suitable cave temperatures are restored.

The future of the gray bat in Florida looks very bright, provided that the major roost sites are adequately protected against human disturbances. Acquisitions, leases, fences, signs, laws and other measures are essential. Just as important, though, is public support for and cooperation with our endeavors to help this beneficial species. Man has caused the gray bat's decline and only he can ensure its survival. □



Anne Shapiro

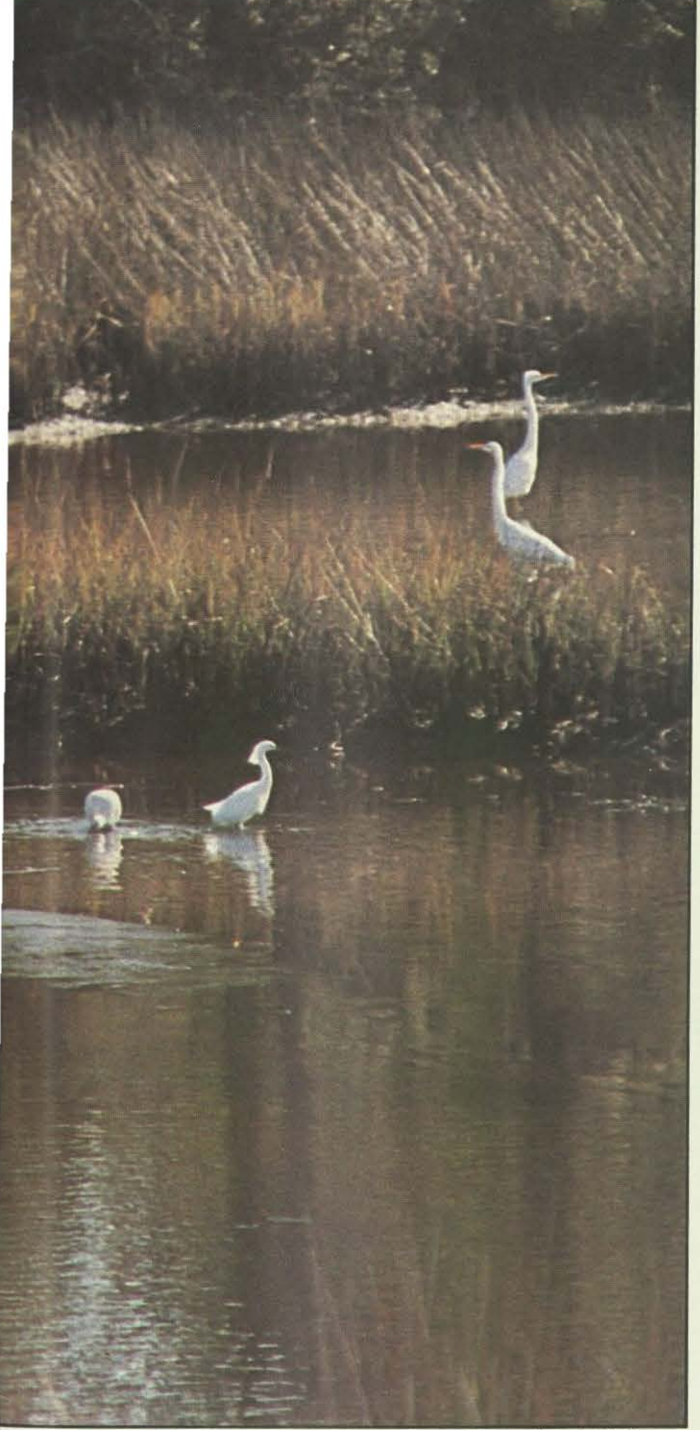
Bruce Cockcroft

Gates such as the one in the photo above, installed at Florida cave entrance, provide handy perch for bat-seeking predators. A gray rat snake, opposite page, attempts to catch flying bat. A cave, left, recently established as a "critical wildlife area," is posted with a sign explaining its off-limits status. See inside front cover and article in Conservation Scene, page 48.

WADING BIRDS and WETLANDS

The group of birds generally lumped together and termed wading birds includes herons, egrets, bitterns, ibises, spoonbills and storks. As the name implies, these birds are generally associated with wetland habitats where they feed on a variety of insect larvae, crustaceans, fish and amphibians. They occur in both freshwater and marine environments throughout the United States, but the greatest concentrations are found in the southeast coastal states. Florida is fortunate to have some of the largest breeding populations for 15 of 17 species of North American wading birds. Although they can be found throughout the state, most are found in central and south Florida.

Much attention has recently been given to wading birds in an attempt to learn more about their numbers, where they occur, and what they require in order for them to continue to be one of our most prominent natural resources. Our best understanding of wading bird populations is for south Florida, but it represents a similar trend for the rest of the state. Before 1870, it was estimated that the com-



Marvin C. Croy

By James Rodgers & David Maehr

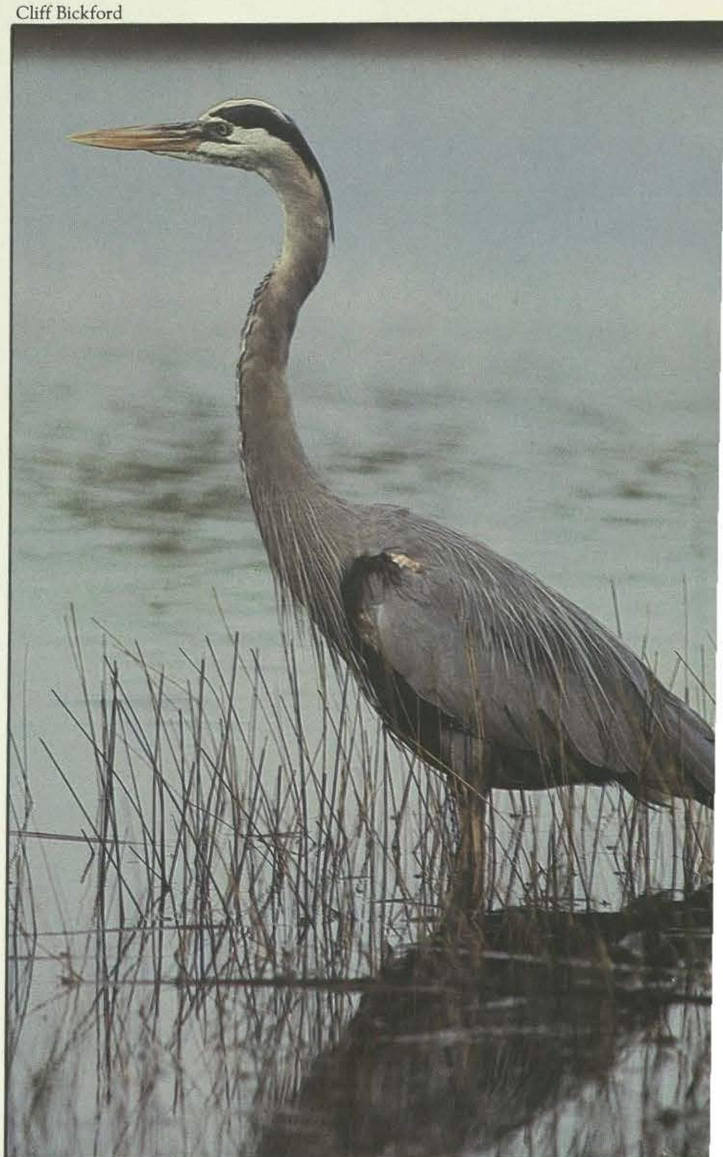
Biologists, Division of Wildlife

bined number of wading birds in south Florida was about 2,500,000 birds. But because of plume hunting, the population had dropped to about 500,000 wading birds by 1910. Although all species suffered, hunting pressures were mostly directed toward herons and egrets that possessed the colorful, showy aigrette plumes, such as the great egret, snowy egret and reddish egret. In addition, because of their breeding in large, concentrated colonies, wading birds were often the object of large-scale egg collecting for personal and commercial consumption. However, with the advent of effective legislation to prohibit trade in nongame bird plumes, the south Florida population recovered to 1,200,000 birds by 1935.

But, because the human population in south Florida was beginning to increase, bringing with it pressures to drain wetlands for mosquito control and land development, wading birds faced a more difficult period ahead. By 1970, the population had decreased to 150,000 wading birds. The numbers dropped to about 130,000 by 1975. Recent surveys indicate the downward trend in wading bird numbers for all of Florida is continuing into the 1980s. Except for the cattle egret, Florida probably has experienced the largest recent declines in wading bird numbers than any of the other southeastern states. Currently, the wood stork is listed as endangered, the reddish egret and roseate spoonbill are listed as threatened, and nine other species of wading

Great egrets, snowy egrets, and white ibis forage a favored spot on a tidewater marsh, left. Great blue heron, below, conspicuous by its size, is usually wary of humans.

Cliff Bickford



birds are listed as species of special concern. This latter category includes species, that while relatively abundant now, are especially vulnerable to certain types of environmental changes (such as wetland destruction) and continue to experience long-term population declines.

As indicated above, the cattle egret has demonstrated a positive increase in numbers in recent years. Commonly observed along roadsides and next to cattle in pastures, the white and buff-colored egret feeds primarily on insects. Since the first few cattle egrets bred in Florida in 1953, the 1975-1976 survey revealed an estimated population of 135,000 nesting pairs in 115 colonies. This is 70,000 more birds than the total number of wading birds of all species that nested on the Atlantic coast between Georgia and Maine. This drastic increase in cattle egret numbers is the result of large increases in open pasture habitat where these birds easily find their insect prey.

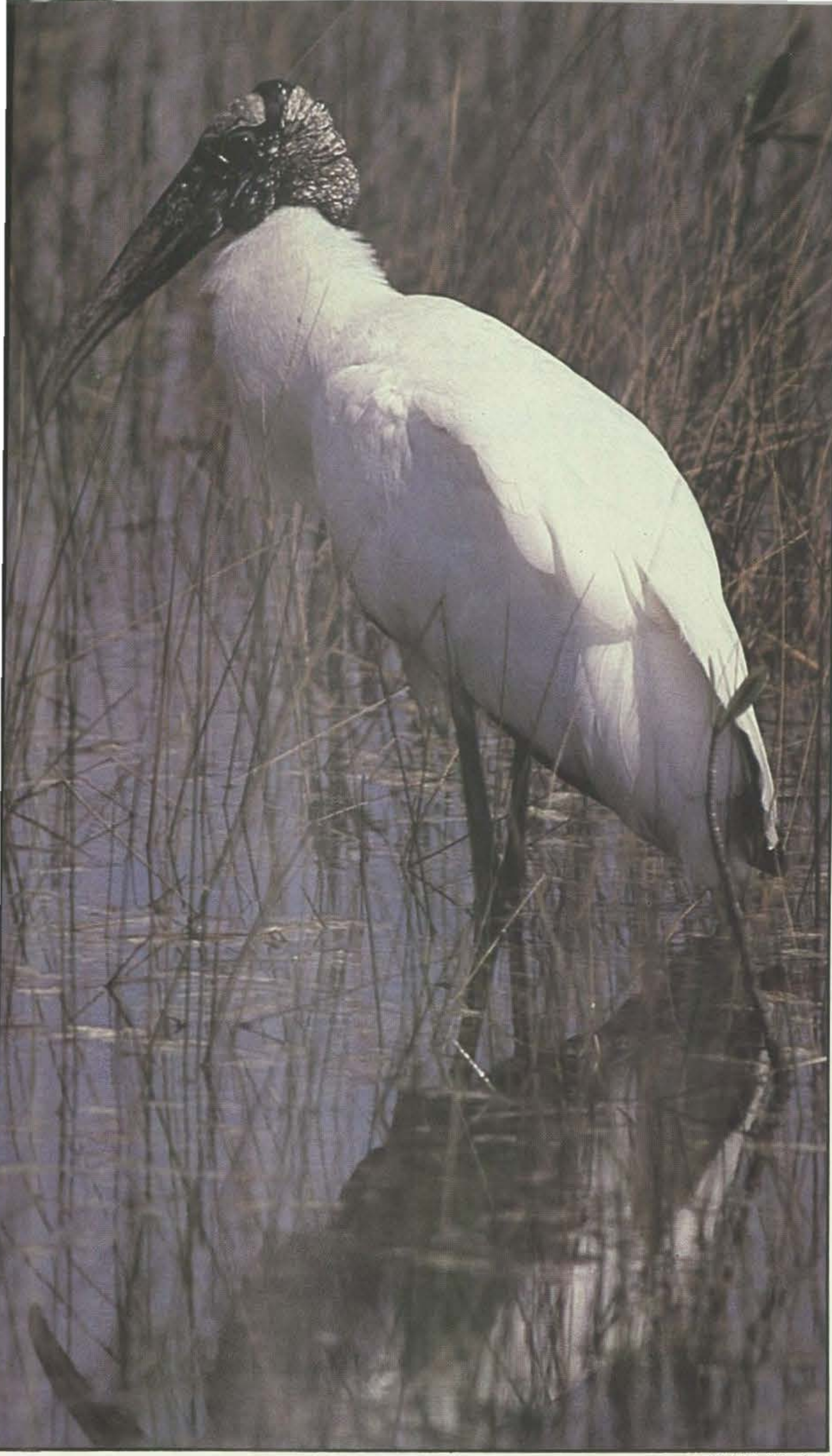
While never under the pressures of plume hunting, the Florida population of the wood stork reflects a similar history. Numbering about 25,000 pairs in the early 1930s, by 1980 the population had decreased to about 4,800 pairs in only 20 colonies. It appears the loss of wetlands, and thus food, has resulted in this decrease in storks. Our research on the wood stork consists of a five-year study of the breeding biology of this endangered species. The study is designed to reveal overall population trends, breeding success, dispersal patterns throughout Florida, identification of wetlands used as feeding sites, preferred breeding habitat requirements, the surrounding land use patterns that impact stork colonies and feeding areas, and the causes of nesting failure.

It is not surprising that since wading birds are so

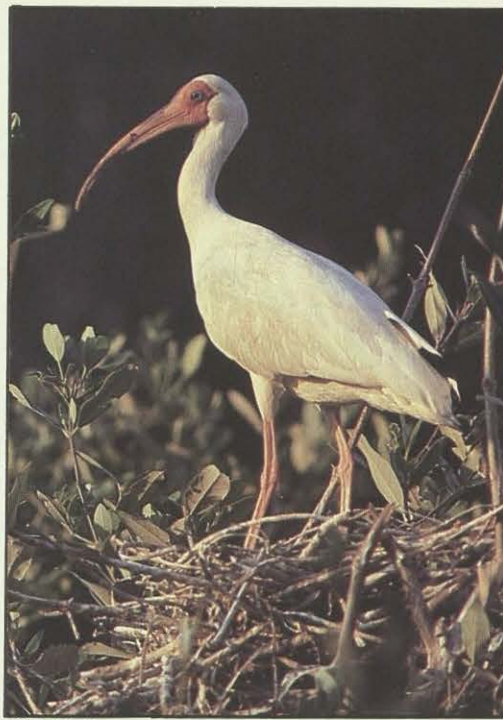
Michael Fogarty

Cliff Bickford

James C. Greene



Cliff Bickford



S.A. Nesbitt

Dave Maehr

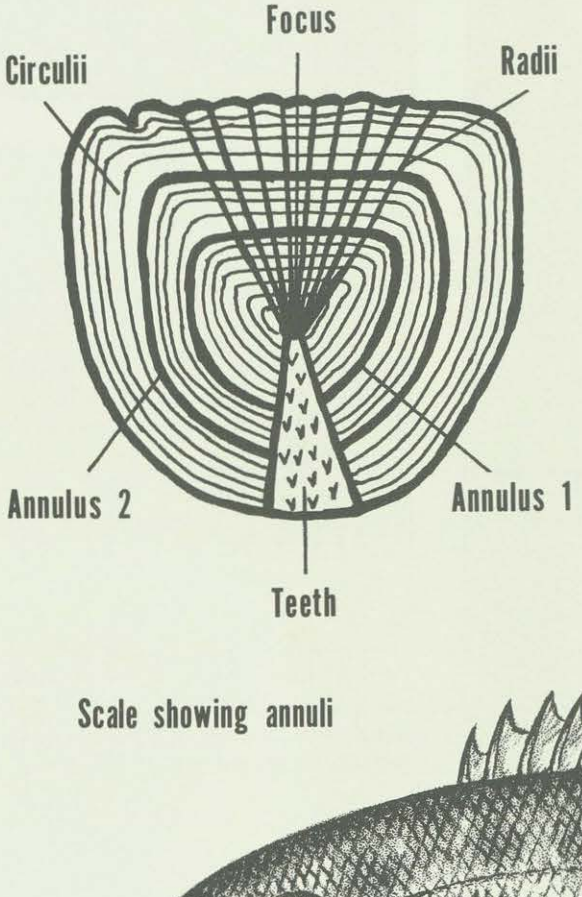
Some wading birds that enliven the Florida scene are, counterclockwise from above, green heron, white ibis, wood stork, snowy egret, cattle egret, and roseate spoonbill.

dependent upon wetlands for feeding and nesting, any major impact to the river, swamp and marsh habitats would affect these birds. It is estimated that 30-35 percent of Florida's freshwater wetlands have been either lost or adversely affected. We like to refer to the wood stork and other wading birds as barometer species for Florida's wetlands. Wood storks are so closely associated with and dependent upon wetlands that whatever information we acquire on them provides us with clues about the health of our freshwater systems in general. The insights thus gained also will benefit both waterfowl and fishes.

More importantly, however, is the impact of wetlands loss to humans. These often large, impenetrable swamps and marshes are the sole water recharge and filtration systems for many of our rivers and underground aquifers. The loss or degradation of these rapidly disappearing wetlands will eventually have an adverse effect on humans in the form of inadequate or low-quality water supplies. Ideally, wildlife and humans should be able to coexist. Indeed, it appears that by ensuring the existence of wading birds, we are assured a better quality life in Florida. ☐

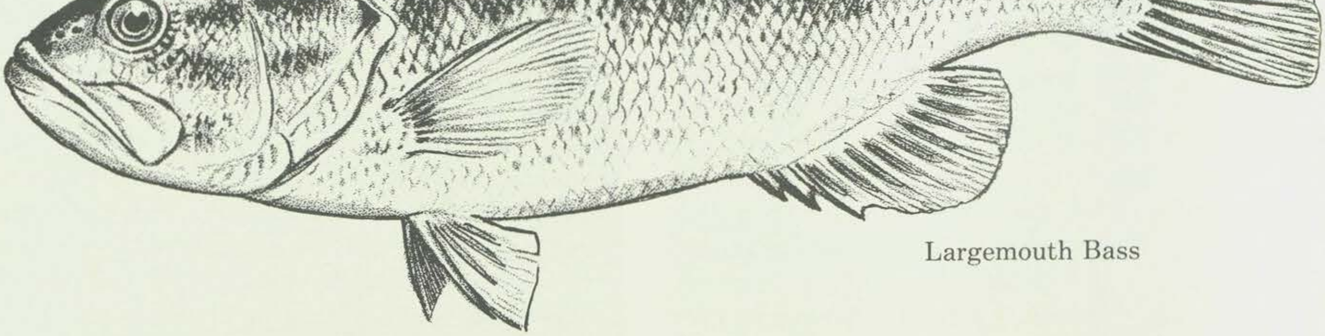
HOW OLD IS IT?

Age data plays an important role in the science of fisheries management. Here's how to tell the age of that fish you catch.

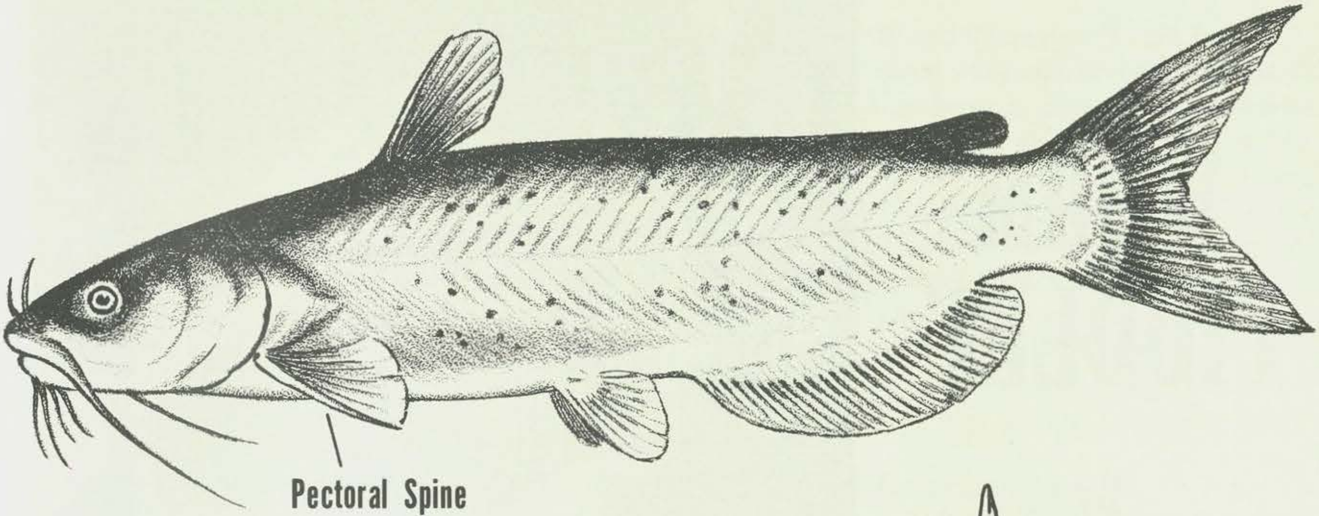


Scale showing annuli

Knowledge about the age composition of fish populations is essential for effective management. It provides the fisheries manager with information not only about the age of a population but also the condition of the fish, how long they live, their age at certain critical periods during their lives (how old the fish is when it spawns, when its habitat requirements change, and when it begins important migrations), and how to determine the rate of growth. Use of this information enables the fisheries manager to manipulate the resource for maximum benefit at minimum cost.

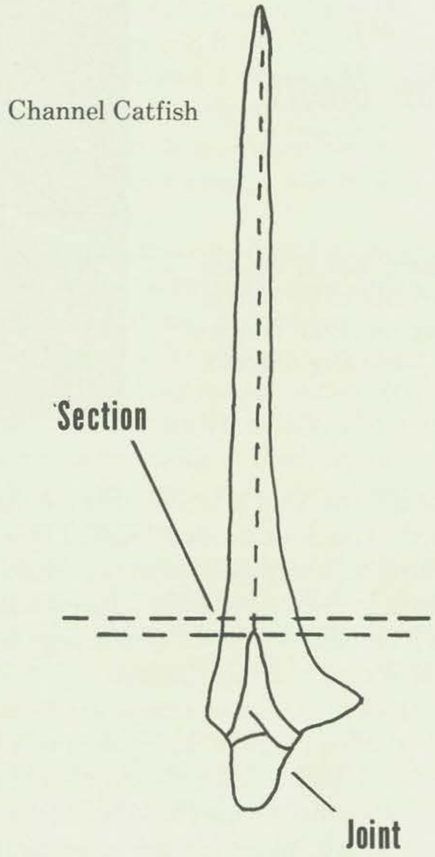


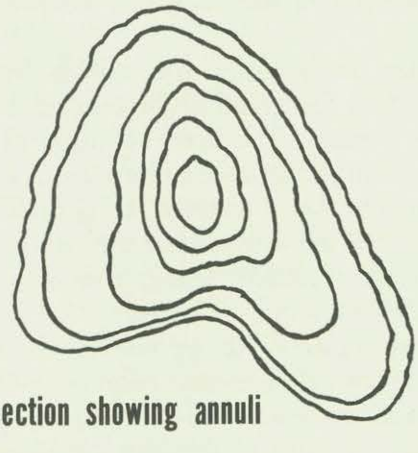
Largemouth Bass



Scales are commonly used to age most species of fish. A typical scale from a largemouth bass is shown here. The age of the bass is determined by counting the number of thick growth rings called annuli. In the example, the fish is 2 years old. Aging fish is similar to aging a tree where the number of growth rings are counted.

Aging of scaleless fish (channel catfish) or fish with very minute scales (trout), however, presents a different problem. Bony structures such as spines, vertebrae, or otoliths (ear bones) must be used. These are cut into thin sections so the annuli can be read. In some cases, the bones are softened with chemicals to make them easier to slice. For example, catfish spines are treated to remove the hard, bony calcium and make the spines soft enough to cut with a razor blade. They are cut just behind the joint to obtain the section needed for aging. Once the sections have been obtained, they can either be soaked in rubbing alcohol or chemically stained so the annuli are easier to see. ■



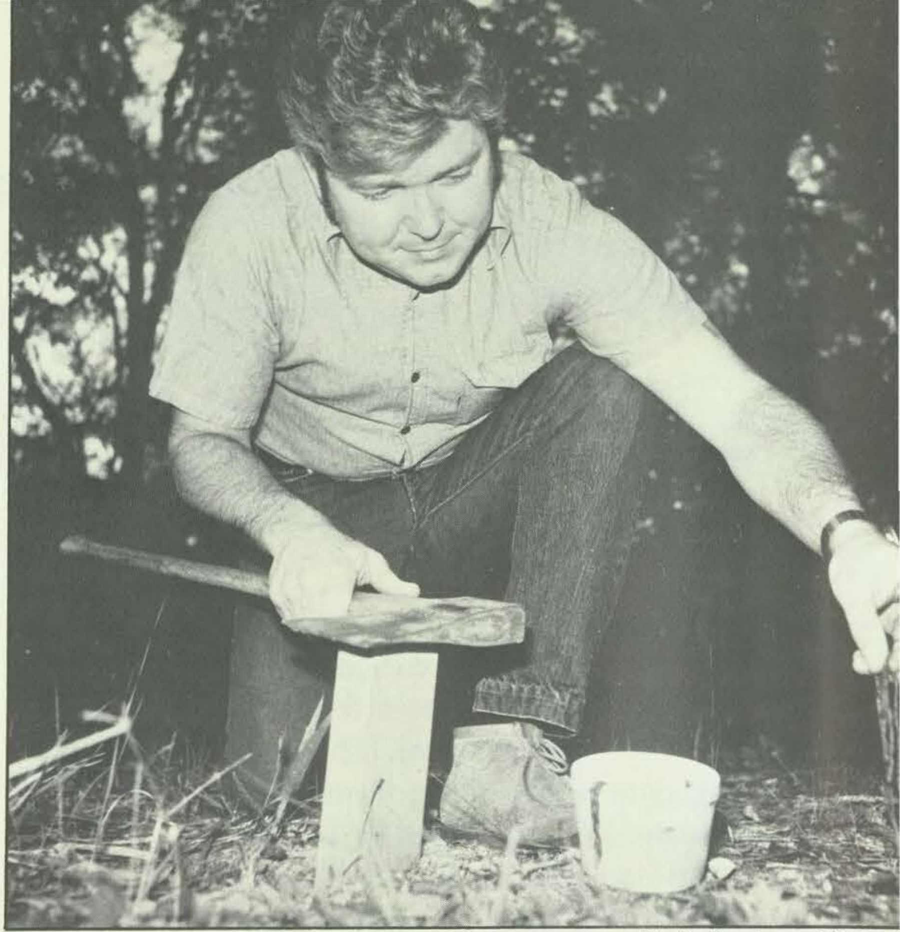

Spine section showing annuli

By Keith W. Ashley and D. L. Garling, Jr.

WORM FIDDLIN'

By Colin Moore

Pensacola News Journal



Worm fiddlers, such as the one at right, will take to the field in force during the 1982 International over Labor Day weekend.

Florida Department of Commerce

Although the shock waves from it didn't exactly knock down buildings in Florida's Panhandle, a mighty dynasty was shaken to its foundations in September 1981 when the Bailey brothers of Caryville finally hit a sour note in the International Worm Fiddling Contest.

But a swift kick in the ego was the worst thing that happened to the happy-go-lucky tandem of Elbert and Billy Wayne Bailey. Elbert's children, Penny Lane, 11, and William Clayton (nicknamed Boogie), 6, of Riviera Beach, inherited the championship from their father and uncle in a five-minute snore-off.

For the uninitiated, a snore-off is the final heat that decides the grand championship of a worm-fiddling contest. The Bailey children were able to coax and can 56 earthworms by drawing a brick back and forth across a wood stake pounded into the ground until the worms were driven to the surface. The practice is called fiddling, grunting or snoring in Caryville's neck of the woods.

The youngsters' victory marked the end of the Bailey brothers' three-year reign as the best worm fiddlers in the world. Billy Wayne, 36, and Elbert, 34, finished third in the men's division with 67 earthworms.

When the fiddling had ended and the worms had been counted in the preliminaries, Albert Jabbo Williams and his son Terry, of Westville, won the men's division with 74 earthworms. The women's division was won by Virginia Hewitt and daughter Amanda, of Bonifay, while Karen Reynolds and Theresa Hall, of Caryville, placed second.

Although the odds of winning four championships in a row went against the Bailey brothers, the crowd of about 150 onlookers expressed some surprise that Billy Wayne and Elbert couldn't pull it out again.

Well before the contest started, the lanky brothers good-naturedly bragged their way to the post position. Masters of the put-on, they entertained their fans with bombast.

"If we win again this year, we're going to get cheerleaders next time. And I'm talking about the Dallas cheerleaders," said Billy Wayne. Like a coat of arms, his pine grunting board bore the inscription "Don't Diddle With My Fiddle."

Instead of nerving themselves for the task ahead, the brothers guffawed at challengers as they drove onto the field of combat, an abandoned ballpark east of town. Despite its name, the International Worm Fiddling Contest usually draws only local competition. There were a couple of exceptions this year, however.

"Looky there, here come the Geneva champions!" yelled Billy Wayne prior to the start as a small pickup bearing Alabama license plates drove past. "They're trying everything to get the Baileys out of it, but they're going to have a hard time—there's about 30 of us."

To be sure, of the 34 entries in the competition, 12 were Baileys by birth or marriage. Since the International Worm Fiddling Contest began in 1979 as one of Washington County's contributions to the Bicentennial celebration, a Bailey has figured in the championship. In the first contest, organizer Joan Palmer and Patsy Bailey—Elbert's first wife—were proclaimed the winners. Then came Shirley Bailey—Billy Wayne's wife—and partner Shirley Anderson in the 1977 contest.

The Bailey brothers, who were the men's champions in the first two contests, won the grand championships for the next three years. Billy Wayne's fiddling fame reached gargantuan proportions and, entering the 1981 contest, it generally was throught by other family members that he could grunt anything out of the ground short of a gopher or natural gas.

"There's a hundred different ways to get a worm up out of the ground. As long as you get a good vibration going, the worms are going to come up. The real secret is that the fiddler and the picker-upper (the contest's official name for the person who gathers the worms raised by the grunter) both look for worms.

"The man on the fiddle don't even have to hit it that hard because everybody else is bringing your worms up from where they're fiddling. These squares ain't but ten feet wide, but one man can grunt up worms in a 50-foot circle."

This time around, Elbert and Billy Wayne weren't so concerned about non-family competition as they were older brother Ralph, who recently moved from south Georgia back home to Caryville. The younger brothers conceded it was Ralph who gave them their primer in worm fiddling. When asked to explain how he became so adept at worm fiddling, Ralph answered, "Hunger."

"We used to grunt worms in order to eat," he elaborated. "If you didn't get no worms, you didn't get no fish and if you didn't get no fish, you went to bed hungry."

Lean times are over for the younger Baileys, although they still grunt worms for fishing trips to the nearby Choctawhatchee River. Nowadays they're hungrier for 15 minutes of glory, including the ten minutes of the main event and five minutes in the snore-off of the International Contest.

Billy Wayne and Elbert didn't mind letting everyone know who they were. Each wore a T-shirt with large black letters on the back that identified the wearer as the "World Champion Worm Fiddler."

Last year's contest was as spirited and noisy as its predecessors. Competitors gave the earthworms under their feet a wide range of sounds and vibrations from which to seek relief. Everyone was allowed to drive his stakes in the ground before the contest marshall Calvet Walker, former mayor of Caryville, made the motion for a Washington County Sheriff's Deputy to fire the starting gun.

Judging the contest with Walker were Caryville City Councilmen Jack Palmer, Russell Anderson and James Ellis as well as city employee Bobby Batson.

The Geneva favorites in the event, 15-year-olds Tracy Williams and Randy Carter, drove five stobs into the ground and Williams sawed over the top of each periodically with a short length of steel. Ralph Bailey, next to them, played his two stakes with a brick. The men's winner, Albert Williams, fiddled with an ax head.

The worms that rose to the surface of the ground to escape the mini-earthquake usually were short and skinny and hard to spot.

Elbert and Billy Wayne's strategy to let their neighbors grunt up worms in their grid as they both gathered didn't work this year. There were no grunters within two grids of them on one side. Through the luck of the draw, they wound up near the end of the grunting area.

It also was rumored that chlorinated water had been sprayed on the ground in the ballpark earlier in the week to keep the earthworms nearer the surface. Billy Wayne said it served to kill or drive out most of the worms.

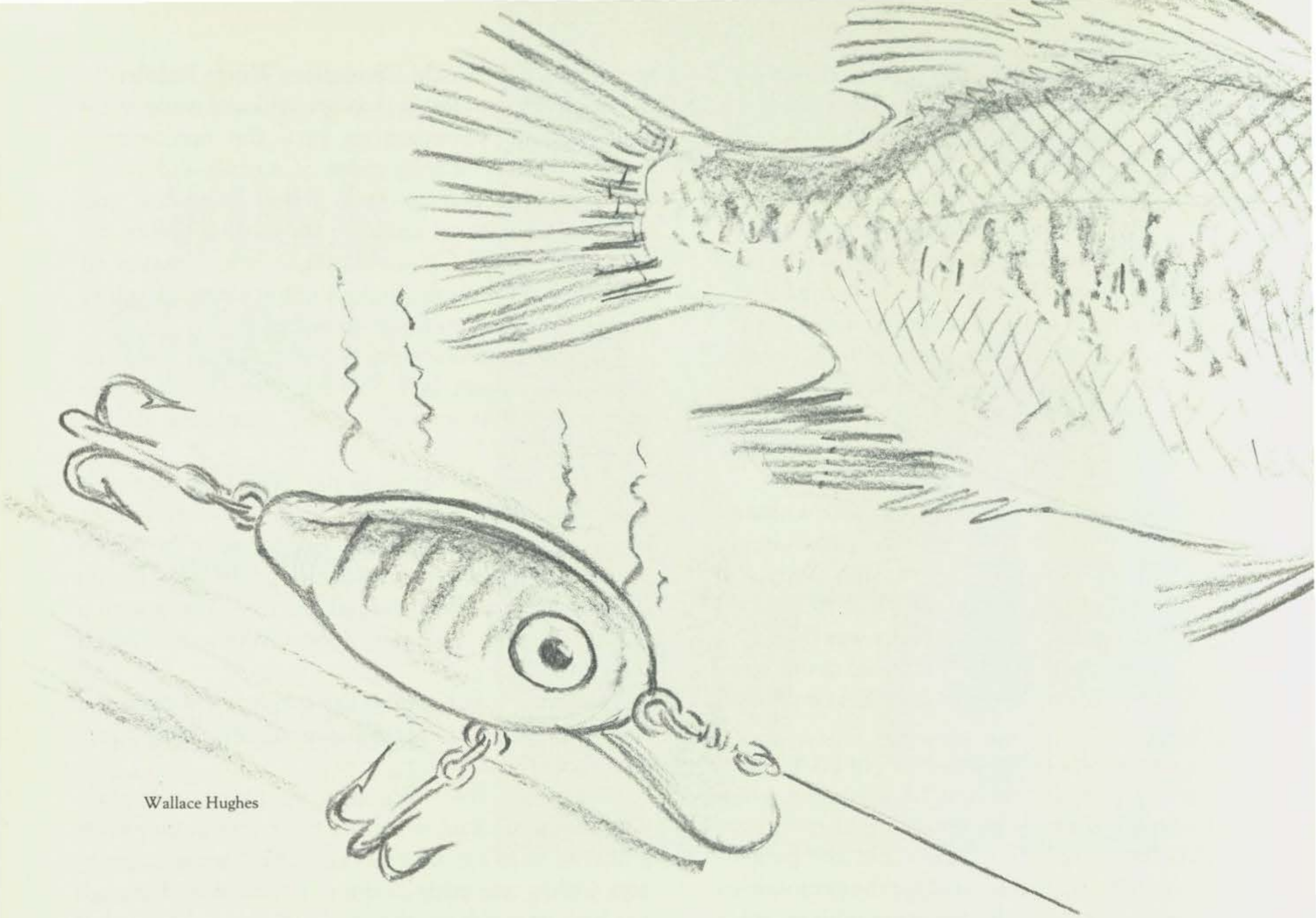
Whatever the reasons, the Bailey brothers lost their crown. When asked why he could only fiddle up 67 earthworms in the 1981 contest, after accounting for a record-setting 207 in 1980, Billy Wayne replied: "Somebody spit on my stick."

After the contest was over and done and a new generation of Baileys had won the day, Billy Wayne and Elbert were forced to hand over their shirts to Penny Lane and Boogie.

No matter. The Bailey brothers vowed to return this September with or without the Dallas Cowboys cheerleaders and regain the championship.

"We're going to be just like Muhammed Ali," boasted Billy Wayne as the crowd gradually wandered away from him and sought out Penny Lane and Boogie Bailey nearby. "We're going to come back and win one more time."

Penny Lane and Boogie paid him no mind. Their new shirts were a few sizes too large, but they kept rubbing their hands over them in admiration. They liked the way they fit. □


Wallace Hughes

WASH YOUR FISHING LURES

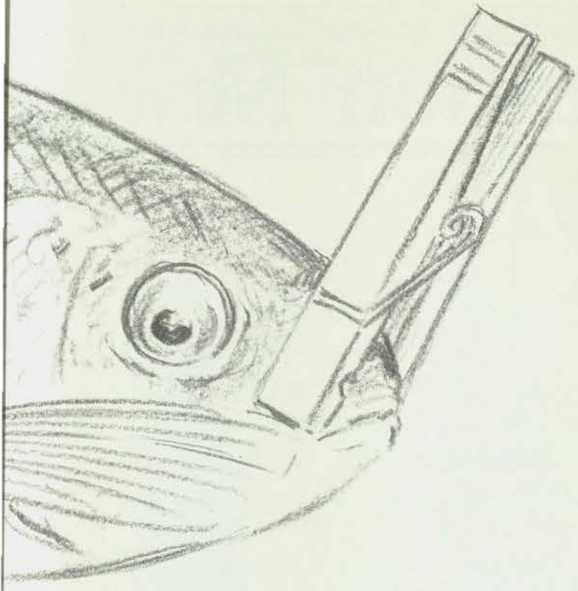
Hey, I've got another one, rings out your partner's voice from the bow of the boat. "How are you doing?" he adds. There you sit with not as much as a nibble while he fills up the stringer. Has this ever happened to you? Ever wonder what happened to your luck that day?

It's possible there was an odor on your lure or bait that was actually repelling fish. Sense of smell is very important to fish and, possibly, is their most important sensory function. Because they must see through water, which is very dense, their vision is good only for short distances.

Generations of fishermen have recognized the importance of scent by using attractants such as cod-liver and anise oil on their lures or bait. Some dedicated trout fishermen thoroughly wash their hands in the sand and gravel of the stream bottom before tying on a fly. They feel this action cleanses their hands of the human scent and gives them the odor of the stream.

Fish biologists have documented the repelling effects of human scent on fish and their ability to detect it in minute amounts. Researchers from the Pacific Biological Station in Nanaimo, British Columbia, tested the effects of 54 substances on migrating salmon ascending a fish ladder. These substances included: anise oil, salmon tissue, Silvo, Brasso, gasoline, rinses from the human hand, bear paws, deer feet, sea lion meat, dog paw, soap and about 20 organic chemicals with their distinctive odors. They poured dilute solutions of the substances into the water above a jump and measured the migration rate afterwards.

Their results indicated the following. "Of the 54 odors tested, only those of human skin, bear paw, deer foot, dog paw and sea lion meat produced a significant affect in the migration rate. Response to these odors was marked and consistent. It was characterized by a complete halt to upstream movement for at least five minutes. During this time, the



fish displayed an alarm reaction which was seen as a series of rapid swimming movements back and forth across the pools of the ladder. An occasional fish leaped back into the lower pool."

The amino acid serine, present in the skin oil of mammals, caused the alarm reaction. The salmon's keen sense of smell, which has evolved over millions of years, alerts them to the presence of predatory mammals such as bears, seals and, most certainly, man. Serine can be detected by salmon in quantities as small as one part in 80 billion (the equivalent of two hundredths of a drop in a large swimming pool). Serine is water soluble, but is held onto the lures by oils contained on the surface of the skin (perspiration or sweat).

Washing lures in hot soapy water will dissolve skin oils and most serine, as well as other potential offensive odors such as gasoline, oil, bug spray, suntan lotion, etc.

There are convenient ways to wash lures. One method is to soak them in a bucket of hot soapy water for about 15 minutes to remove dirt, grime, skin oils and serine. Rinse them in clean hot water and place on paper towels to dry.

Fishing lures can also be washed very thoroughly in an automatic dishwasher. String the lures onto a wire (a little thinner than a clothes hanger) which is long enough to reach across the dish container and be bent over on each end to secure it to the rack frame. Thread each lure through the split ring on the back end. Don't use the hook eye or the split ring at the front of the lure because a big tangle will result. When there are enough lures on the wire, fasten the two ends to the opposite side of the rack by bending them over. Use the silverware basket only for those lures and spoons which are heavy enough to prevent them from bouncing out during the wash and rinse cycles.

Use a double rinse cycle, if possible, because some dishwashing detergents could have corrosive effects on plastic and painted finishes if not completely rinsed off. It is best to allow the lures to air dry after the rinse cycle because the intense dry cycle heat may melt plastic lures or cause reflecting tape to peel off.

The results will speak for themselves. After washing, lures sparkle and shine like new. This is a good time to inspect them for spots which might require a little touch-up paint, replacement of hooks, etc. Also, they will be free from the accumulation of dirt, grime and possible repellents.

How often should you wash your lures? Wash them prior to the beginning of each season and then whenever you feel it's necessary. If your fish catches drop off for no apparent reason, take the time to wash your lures. Besides possibly increasing your catches, lure washing and maintenance are good therapy when weather conditions keep you indoors and off the water.

What about attractants? For years, fishermen have sworn by the results they get when a little dab of anise oil is added to a lure or bait. Anise oil is derived from "...an herb (*Pimpinella anisum*) of the carrot family having carminative and aromatic seeds." It may work for some fishermen quite well; as for myself, I prefer fishing with a dab of cod-liver or sardine oil on my lure. Some fishermen in the Northwest use a rubber band to hold a small bit of herring or sardine to their spoons and plugs to attract salmon.

Remember the saying, "Spit on your bait for good luck?" That's not an old wive's tale, my friend. A study done by research biologists on catfish found that, of all flavors presented to them, ranked in order of preference, first was worms, second was liver, third was human saliva! Now, how do we get the stuff in a bottle?

My grandfather used to tell the story of the catfisherman who had no luck all day, though he was sitting beside a youngster who was filling his stringer. The oldtimer asked the kid what his secret was and he replied quite casually, "Heck, it ain't no secret. I just keep the worms in my mouth to keep them warm and lively!" ■

By Paul McElroy

Hunter Education News

One of the most often heard objections to guns is that they cause too many accidents. How many of us have heard our parents say "guns are too dangerous" when we asked about getting one as a Christmas or birthday present. Some parents see guns as a means for an active youngster to do harm to himself as well as others. When properly handled and respected, shooting sports are safer than many other activities in which we participate.

Just how dangerous are shooting activities when compared to other sports? Statistics show us that a person is more likely to be injured while playing baseball, football or even while riding a bicycle than when using a gun at target practice or while hunting. These are all accidents that require emergency room treatment, not minor scrapes, bumps and bruises. Figures released by the U.S. Consumer Product Safety Commission list guns as causing fewer accidents than swimming, tennis, water skiing, skateboards and even fishing.

As many of us know, most firearm accidents occur in or around the home, but what about accidents with common household items? Nearly five times as many accidents are caused by tables as by guns. More than six times as many accidents are caused by chairs and more than three times as many are caused by drinking glasses. The common everyday aspirin tablet causes more accidents than guns do. The next time you take a bath or shower, remember, you are more than four times as likely to be injured than if you were hunting.

More people are injured every year by automobiles than by any other single item, nearly 2,000,000 in 1980 alone. That's almost 10 percent of the entire population of the United States. Perhaps we should start a "ban the automobile" movement.

All of this is not to say that guns cannot cause accidents when improperly handled. Guns should always be treated with respect by the shooter. New shooters should always seek advice on safe gun handling procedures before attempting to shoot a gun. The Game and Fresh Water Fish Commission, through its hunter education program, is dedicated to helping new shooters and hunters get off to safe starts. Gun safety is taught and stressed throughout the course in order to guide the student in developing good shooting habits. Florida's volunteer hunter education instructors are men and women dedicated to making gun handling safer than it already is, because even one accident with a gun is too many.

If you would like to participate in a hunter education course or you know someone who would, please contact your nearest Commission regional office.

When properly instructed in firearms safety, you can look forward to a lifetime of safe and enjoyable shooting sports. ■

GFWFC Photo

Guns are not dangerous when handled with respect. Shooting sports are safer than many other everyday activities we engage in. For example, statistics reveal that four times more people are injured while taking a bath than are hurt while hunting.

Striped Skunk

Leonard Lee Rue III

Call Me STINKY

By Wyatt Blassingame

A wild, fully grown skunk will weigh about eight pounds. It moves slowly, with a kind of waddle. It has no poisonous fangs like those of a snake. Its teeth are small; its claws are strong but not particularly sharp. It would seem to be one of the most defenseless animals in the world.

Yet, if this kitten-sized skunk was ambling along a forest trail and came face to face with a six-foot, 350-pound black bear, the bear, probably, would step respectfully aside and let the skunk have the right of way.

However, if this particular bear happened to be young and inexperienced, it might stop in its tracks and stare down at the skunk. The skunk, in turn, would stop and look up at the bear. Now this bear, being young and ignorant, might decide the skunk was worth eating and start forward. If so, the skunk would stamp its tiny front feet. As the bear came closer, the skunk would stamp again and make a hissing noise, warning the bear to keep away. The skunk would then lift its beautiful, bushy, black and white tail high over its back. It would twist its little body into a U shape so both its face and rear end were pointed toward the bear.

And if the bear kept coming, the skunk would fire—straight at the bear's face—a strange but highly effective weapon. From the skunk's rear end would dart a yellowish, oily liquid that broke quickly into mist. Tiny drops would strike the bear's eyes, its mouth, its nose.

And the bear, temporarily blinded, making roaring noises of mingled surprise and pain, would depart as fast as possible. The skunk would continue its slow, dignified stroll, just as though nothing at all had happened. And if the two ever met again, the bear would step politely out of the way.

It is this strange, "skunky" weapon—a smell so powerful it can be actually sickening—for which the skunk is most famous. But the little animal has many other interesting qualities. Indeed, the skunk is well worth knowing about. And the more we know about him, the more interesting he becomes.

Scientifically, skunks are divided into ten or more species. But the difference between some of these is so little that only an expert can tell one from the other. However, there are three groups or genera of skunks that may be easily identified. These are the striped skunk, the spotted skunk and the hog-nosed skunk. Of these, the striped skunk is by far the most common in the United States. Most of what can be written about it will also apply to the others.

The scientific name of the striped skunk is *Mephitis mephitis*. *Mephitis* means foul or evil smelling, and *Mephitis mephitis* means double the stink. Algonquin Indians called the skunk "Segonku." Just what that meant is uncertain, but from it early English settlers got the name "skunk." French Canadian trappers gave it another name, "Enfant du diable," the child of the devil. Today, in many parts of the U.S., skunks are called polecats. Scientifically, however, polecats (*Mustela putorius*) are European relatives of the American skunk and the direct ancestors of the domesticated ferret.

Whatever it is called, the striped skunk is a handsome little animal. About 12 to 16 inches from nose to rump, it has a plume-like tail almost as long as its body. The fur is sleek and glossy. The nose is white, the rest of the face black except for a white stripe that runs from the nose across the top of the head to the shoulders. Here the strip splits in two parts, one running down each side of the body. The rest of the body is black. The tail is usually carried curled over the back, like a black and white banner.

Now and then this pattern may vary. Occasionally, the white stripes may be much broader than average, or they may be more narrow.

Striped skunks live from as far north as Hudson Bay in Canada all the way to northern Mexico. They may be found in all 48 of the contiguous United States. They make their homes not only in rural areas but sometimes in towns and even in cities. Indeed, skunks have been found living happily in the middle of New York City. Wherever they live, they are approached with great care by anyone who knows about them.

How the Skunk "Skunks"

The skunk has two glands embedded in muscle, one on each side of the anus. Normally, these glands are carried inside the animal's body but when the skunk is angry or in danger, the glands protrude, much like the nozzles of tiny water hoses. If the danger keeps getting closer, the skunk bends its body into a U shape, both ends facing the danger. The tail is raised straight up out of the way. Finally, the skunk contracts the muscles around the glands. This fires a jet of oily, yellowish fluid. Because the glands protrude slightly before firing, none of this fluid gets on the skunk. Apparently, the skunk itself doesn't like the smell any more than other animals do.

Naturalists disagree on just how far a skunk can shoot its fluid, since no one has wanted to measure this very carefully. Probably this first jet can carry out five to eight feet. There is also disagreement about just how accurate a marksman the skunk can be. Some persons swear that a skunk can make a direct hit on the eyes and nose of a troublesome dog or person ten feet away. But certainly the fluid breaks quickly into a fine mist that covers a larger and larger area as it drifts downwind. Close to the skunk it will stick and cling to whatever it touches, a sickening odor that will last for days and even weeks. Close contact will not only cause a painful burning of the eyes and nose, it can cause temporary blindness. Drifting downwind it can be smelled for a half-mile or more.

If need be, the skunk can fire its musk five or even six times in a row. The first discharge, however, is always the strongest, and after the fifth or sixth the animal must wait until its glands create more fluid. On the other hand, the skunk is a peace-loving animal. It never uses its awesome weapon except in self-defense.

There is no really good way to remove the skunk's odor from an animal or from clothing that has been well sprayed. There is an old folk story that the best way to remove the skunk smell from clothing is to bury the clothes for a week, dig them up, wash in vinegar—and then throw them away. Actually, washing in vinegar will help somewhat, so will washing in stale beer or tomato juice.

I have a friend with a large white dog that simply can not learn to leave skunks alone. Everyone in the neighborhood knows when dog and skunk have made contact, not only because of the dog's odor but also because the owner then bathes it in tomato juice. For weeks afterwards, the dog, a bright pink color, slinks about looking ashamed of itself.

Strange as it may seem, very tiny amounts of musk are used in making the most expensive perfumes. The musk helps the perfume hold its odor for a long time.

Back in 1897, a scientist at John Hopkins University wrote that the chemical which caused the skunk's odor was n-butyl mercaptan. Modern tests have determined that actually the substance is more complicated, being composed of crotyl mercaptan, isopentyl mercaptan and methyl crotyl disulfide in a ratio of 4-4-3. It was hope that if the exact formula of the smell was known, someone might be able to develop a truly effective way of getting rid of it. But tomato juice is still the most commonly used deodorant.

The Skunk's Enemies

The skunk's distinctive black and white markings make it easy to recognize. Most animals—despite my friend's stupid dog—soon learn to leave it strictly alone. Now and then a very hungry bobcat or fox may attack a skunk, but this is rare. In the wild, the one real enemy of the skunk is the great horned owl. Strangely, this owl seems immune to the skunk's odor or maybe it just doesn't care.

But it is man, and the man-made automobile, that are by far the skunk's most deadly enemies. Skunks hunt chiefly at night. Frequently, they prowl the highways, feeding on insects, frogs and other creatures killed by passing cars. When a skunk sees headlights of an approaching auto, it expects the car to give him the right of way just as another animal would do. Unless the driver sees the skunk and stops to let it amble on in peace, the result can be disaster for both skunk and auto.

There is a story of a driver who, having encountered a skunk, went immediatley to a car wash. Later his bill read: "Car wash $3.50, letting car in our building $10.00."

Because of its handsome black and white fur, skunks were once highly valued by trappers. Called Alaskan Sable, or Black Marten, the furs sold for high prices. Since the wild skunk is more curious than intelligent, it was easily trapped. As a result, the skunk population was greatly reduced.

But the skunk's fame for being skunky saved it. The government passed a law that furs used for clothing had to be honestly labeled. And where women liked to wear coats of Alaskan Sable, a coat of skunk fur somehow didn't seem as handsome. The price of skunk fur went down and many trappers lost interest.

Family Life

Most of its life the skunk is an independent, self-sufficient animal. This is particularly true of the males. Females, at least part of the time, lead a somewhat more social life, especially in winter.

Skunks do not hibernate in the winter, as do such animals as wood chucks and ground squirrels. In fact, winter makes very little difference in the life of a southern skunk. But in the north, where snow often covers the ground, skunks like raccoons retire into dark, cozy dens. These may be in hollow trees but more likely they are underground burrows beneath piles of rock or fallen trees.

Since the skunk wants its burrow to stay not only warm but dry, they are often dug under houses or barns. Here the skunk causes no trouble, as long as it is left alone.

Male skunks usually have dens of their own, spending the winter alone; so do most females. Sometimes, however, several females may spend the winter together. This is usually in twos or threes. But if the den is particularly large and comfortable and the area rich in food supply, a dozen or more females have been known to set up a kind of apartment house for the winter. Even so, since most of the time is

Striped skunk emerging from den in hollow log.

Leonard Lee Rue III

Call Me STINKY

Ready . . . Aim . . . Watch Out! Leonard Lee Rue III

spent sound asleep, it isn't a very social life.

With the first spring thaws, male skunks leave their dens to go hunting. But now they are hunting more for a mate than for food. At this time, the male may wander for several miles in one night, a long way indeed for such a slow, short-legged animal. And this is the one time in a skunk's life that it is not an altogether peace-loving animal. Where two males are courting the same female, there is likely to be fighting. Sometimes this is so fierce it may leave one of the males crippled or even dead. Also, this is the one time that the skunk itself may smell skunky—in desperation one skunk may spray the other and be sprayed in return. As mentioned, the skunk doesn't like skunk smell any more than other animals do.

The Young

After mating, the male wanders away. If he should meet the female and his own young later in the summer, he apparently does not recognize them.

If the weather is cold, the female remains in her den until later in the spring. Some two months after mating, usually about May or early June, she will give birth to a litter of tiny, blind, hairless kittens. As a rule, these number four to six but there is a record of one skunk having 16 kittens in one litter. However, the female can nurse only six at one time. In large litters, some of the weaker kittens usually starve.

When baby skunks are three weeks old, they open their eyes for the first time. By now they are growing the soft, black and white fur they will wear all their lives. And, probably, it is about the same time they first begin to develop the musk glands that will be their protection throughout life.

By the time the young are one month old, they can walk or at least totter about the den. Another two weeks or so, they are strong enough to follow their mother when she goes hunting for food.

Since skunks hunt chiefly at night, it is usually after dark when the young first leave their den. They do not go galloping off in different directions as a litter of puppies might do. Instead, the mother leads the way and the young follow in single file. This is a strange sight indeed—small, black and white balls of fur moving in a slow, wavering line through the early evening darkness.

This single-file formation is probably for the babies' protection. Small, slow and not yet sure of how to defend themselves, the young would be easy prey for most predators. But, under the watchful eye of the mother, they are safe from almost any danger except the great horned owl and the automobile.

All through the early summer, female skunks are very maternal. Both wild and captive females have been known to adopt orphan young, raising them as their own. Night after night she leads them out of the den, teaching them how to defend themselves, if necessary, and how to hunt for food.

As a rule, each female has her own territory. Each night, with her line of small fry close behind, she follows more or less the same route. Her diet is as varied as that of the raccoon and quite similar. That is, she will eat almost anything edible.

In the early summer, insects are plentiful and the skunk dines chiefly on these. She goes scratching under bushes and through tall grass looking for crickets, roaches, grasshoppers, bugs of all kinds. If she finds a bee, she eats it. If she happens on a nest on the ground, she will eat both eggs and young. Even so, insects make up well over half of the skunk's diet. Ernest Thompson Seton, the famous naturalist—he also helped start the Boy Scouts of America—once wrote that every skunk was the "guardian angel" of a half-acre of garden because of the insects it destroyed.

By late summer, the young, born that spring, have learned how to hunt for themselves. One by one they begin to wander off, each searching for a territory of its own. By autumn, the mother is usually once more alone.

With fall, the skunk's appetite grows sharper. This is true of both young and adult skunks. They are instinctively building up body fat on which to live during the cold, snow-bound months ahead. To their summer diet they add berries, grain and any nuts they can crack. They hunt the roads for snakes, turtles, almost anything else killed by passing cars. Growing steadily hungrier, they may take to visiting garbage dumps.

By early winter, the skunk is, or should be, well padded with fat. As the weather grows still colder, it spends more and more time in its den, sleeping away the nights as well as the days. ■

New Regulations

It was during the "duck depression" years of the 1930s. Plagued by drought and, under the circumstances, perhaps a heavier than desirable harvest, the future looked bleak for North American waterfowl. In an effort to restrict the kill and thereby to send back to the northern breeding grounds more seed stock, various restrictions were imposed on hunters. One was the limiting of shotgun capacity to three shells. It became Federal law that hunters of migratory game birds must "plug" the magazine of their pump or semi-automatic shotguns. This was accomplished by installing a filler plug, frequently a section of dowel, in the magazine so it could hold only two shells.

Many of the state agencies, including Florida, adopted this idea even for resident species. Although the plugged shotgun rule still applies for hunting migratory game birds in the state, Florida hunters, starting this season, will be free to unplug their shotguns when hunting resident game such as deer, turkey, quail, squirrels and rabbits. The Commission's decision to cancel the plugging restrictions puts reliance on bag limits to keep the take within the bounds of allowable harvest.

Another change in the rules for the upcoming season is the increase in the bag limit for gray squirrels and rabbits to 12 per day, the same as for quail and doves. Among other considerations, it makes it easy for small game hunters to remember what is the bag limit.

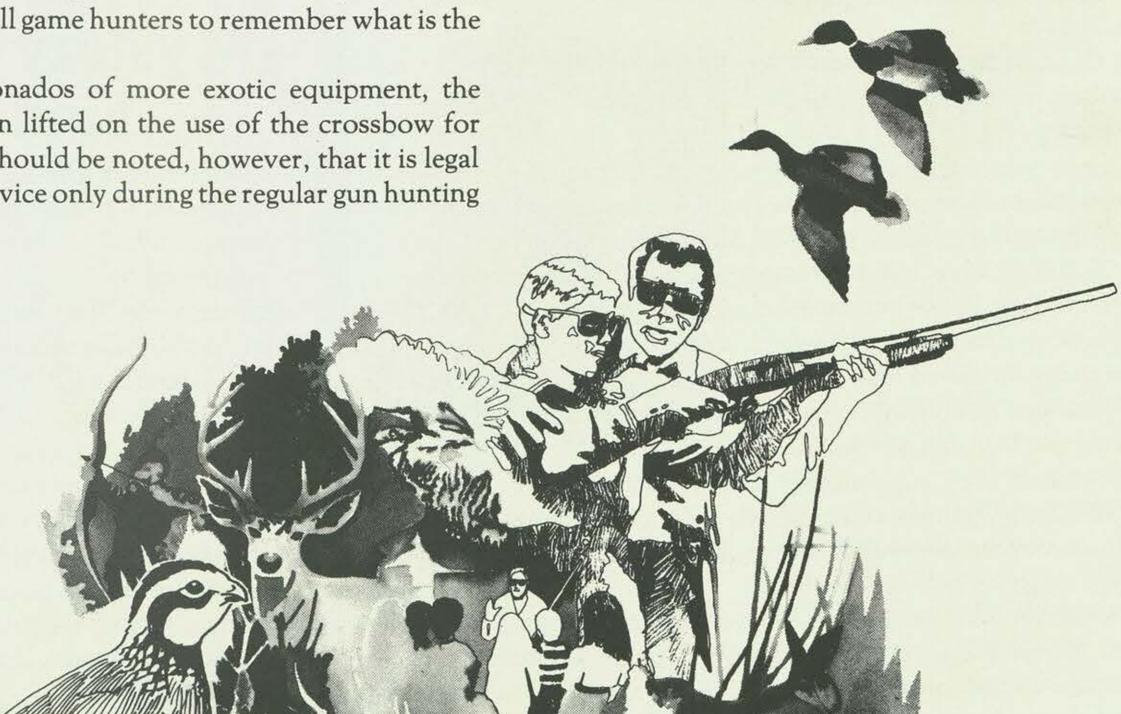
For aficionados of more exotic equipment, the ban has been lifted on the use of the crossbow for hunting. It should be noted, however, that it is legal to use the device only during the regular gun hunting season.

Incidentally, the Commission will no longer use the term "primitive weapons" in its regulations but rather will specify archery and muzzleloading guns, as appropriate.

Another change in regulations this year allows the transfer of both quota hunt and antlerless deer permits from one hunter to another. This will allow these special licenses to be utilized should the original permittee find he is unable to make the hunt as planned.

These are but a few of the changes adopted after a comprehensive review of the wildlife code. "In view of these changes, we encourage a careful reading of the regulatory publications available from the Commission," said Capt. David E. Swindell Jr. Swindell oversaw the review of general regulations as well as wildlife management area rules. —*Ron Stock* □

Available from the regional offices and the Tallahassee office are the *Florida Hunting Handbook, Wildlife Management Area Regulations Summary* and individual management area regulations. Migratory bird rules will be available in early September, after final decisions on the seasons are confirmed by the federal authorities.



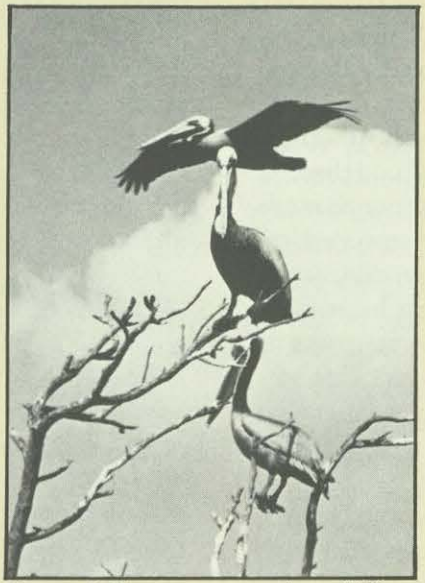
Art from Florida Hunter Education Handbook

CONSERVATION SCENE

Brown Pelican Comeback

The brown pelican is a familiar sight along Florida's waterways. This awkward-looking bird with the giant beak has delighted young and old with its antics. Once it was threatened from detrimental effects of pesticides and was added to the federal endangered species list in 1970.

It has come back in many areas and, with an annual average of 8,000 nesting pairs spotted during aerial surveys by the Commission, there is little doubt the pelican is safe in Florida. Now the U.S. Fish and Wildlife Service will propose the bird be removed from the endangered species list this fall. The delisting, however, will not apply to California or Louisiana where the pelican is still struggling to survive.


Brown Pelican Lovett Williams

Gilbert & Williams Honored

Two Game and Fresh Water Fish Commission biologists recently received awards for their work in special projects related to the environment.

Terry Gilbert of Vero Beach was selected to receive the award as Phosphate Environmentalist of the Year for 1982 by the Florida Phosphate Council.

Gilbert, a biologist supervisor with the Office of Environmental Services, was named to receive the award for his research in the restoration of wetlands on mined phosphate lands. He carried on the research on a 50-acre tract owned by the International Minerals and Chemical Corporation of Polk County. He was nominated for the award by the Polk County Chapter of the Sierra Club.

Receiving an award from the Central Florida Wildlife Association was Vincent P. Williams, a biologist supervisor with the Kissimmee office of the Division of Fisheries.

He received the Association's "Conservationist of the Year" award for 1981 from Orange County and the City of Orlando for his work to eliminate surface discharge of sewage effluent in the waters of Lake Tohopekaliga .

Williams worked along with "Save Our Lakes, Inc.," a Kissimmee citizen group. As a result of the citizen group activities, the group received a community service award given annually by Walt Disney World, Inc., along with a check for $1,000.

Whooping Crane Project

The project to reestablish the whooping crane in Florida moved closer to realization last month when the first migratory greater sandhill crane eggs were placed in the nest of a pair of non-migratory Florida sandhill cranes in exchange for their own. The swap took place on Paynes Prairie and the results will be carefully monitored by Commission biologists. If Florida sandhill cranes foster the migratory sandhills successfully and the bonding overcomes the birds' natural instincts to migrate, whooping crane eggs will be used in the next phase. This experiment was scheduled for last spring but was not conducted when the drought prevented nesting. Greater sandhill crane eggs were flown to Florida by Paxutent Wildlife Research Center in Maryland.

Mystery Bird Find

It all started when a commercial fisherman in Sarasota Bay found a band attached to a leg bone in the bottom of his net. He turned the band over to Wildlife Officer S.A. Rogers who, in turn, mailed it to the Federal Bird Banding Laboratory in Washington. The report came back that the band was from a young Adelie penguin. The bird was banded near Ross Island, Antarctica, on February 1, 1970, by personnel of Antarctic Banding when it was very young. How the penguin's bones ended up in Sarasota Bay some 3,100 miles away will probably remain a mystery.

All You Have To Do Is Catch That First Fish

The morning's first fish can give you the best fishing advice you can beg, borrow or steal.

Even if that catch comes easy, spend a few minutes to extract the valuable information it can provide, advise the fishing experts at Mercury Outboards.

An examination of stomach contents will reveal a lot of what's happening underwater and guide you toward a successful fishing pattern the rest of the day.

A simple stomach analysis reveals two important things: (1) it shows what foods are preferred at that particular time, and (2) it tells approximately where the best fishing will be found.

If crayfish or aquatic insects are discovered, work diving lures or bait on bottom. When minnows show up, use either natural bait or jigs around submerged brush or similar havens.

Grasshoppers, beetles or other land creatures are a signal to cast against the bank, using shallow-running lures or surface plugs. Trout anglers are especially attentive to such clues, but bass fishermen can likewise benefit.

Pay attention to the fish's natural preferences, says Mercury, and your score will improve.

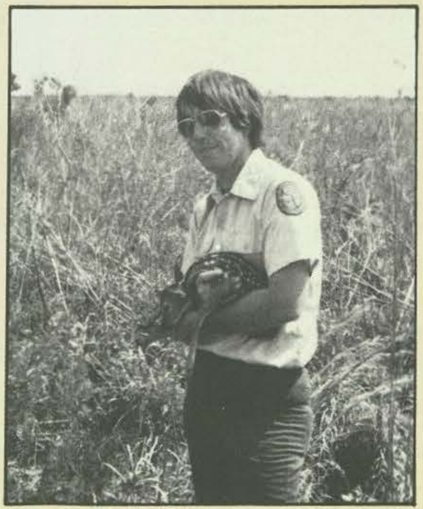
Now all you have to do is catch that first fish. If things get desperate, you can always offer to clean someone else's catch.

Bruce Bowman 1952-1982

Bruce Bowman, wildlife biologist assigned to the J.W. Corbett Wildlife Management Area, was killed May 28 while working on the area.

Bowman was surveying red-cockaded woodpeckers when the swamp buggy he was driving overturned into a canal.

Bowman, the first full-time biologist assigned to Corbett, began working for the Commission in October 1977 and had a special feeling for the area. He and his wife chose to be married last year on Corbett.


Bruce Bowman

A graduate of the University of Georgia with a bachelor's degree in zoology and a master's degree in wildlife ecology from the University of Florida, Bowman worked on deer, hogs, red-cockaded woodpeckers and sandhill cranes, and placed particular emphasis on his work with Palm Beach conservation clubs.

A memorial fund has been established in his name with the Wildlife Society Building Fund in Washington, D.C.

Record Fish Caught

The state record white bass, a 4½-pounder caught on March 22, 1976, by John W. Padgett of DeFuniak Springs, was topped on April 9, 1982, when Richard Steven Davis, Chattahoochee, landed a 4-pound, 11-ouncer. Both fish came from the Apalachicola River just below Jim Woodruff Dam. Padgett's fish fell for a white jig while the new champ grabbed a small live shad.

Merritt's Mill Pond near Marianna again produced a record-topping shellcracker, this one a 4-pound, 2-ounce specimen. Larry Gates of Pensacola landed the prize on April 19, 1982. The state record has been inched upward several times recently and is now only 4 ounces short of the world record of 4½ pounds; that one came from Alabama some years ago. It looks like a good possibility that a world beater will come from the popular west Florida shellcracker hot spot in the not-too-distant future.

Support Wildlife Alert

Wildlife Alert is one of the most successful programs implemented by the Florida Game and Fresh Water Fish Commission to thwart violations of wildlife and freshwater fish laws.

The program pays cash rewards to persons who report such law violators. If you would like to make a contribution to this tax-deductible organization, please send your check to the Wildlife Alert Reward Association, c/o The Sun First National Bank of Lake County, Drawer 8, Leesburg, FL 32748.

Walleye Experiment

The walleye, a much-sought game fish of more northerly waters, but a stranger to our part of the world, may be available to Florida anglers in the not-too-distant future. Some 40,000 fingerling walleyes have been released in Lake Juliana near Auburndale. By nature, the species is a schooling fish, preferring open water close to the bottom, thus, they occupy a special niche not now taken up in some of our degraded waters. Walleyes prey on other fish and, with an abundance of shad and, in some waters, tilapia, the walleyes may help keep the situation under control.

It is strictly an experimental effort, fisheries biologists say, but it could bring a payoff by utilizing waters not occupied by game fish.

Critical Wildlife Areas

What do least terns, gray bats and brown pelicans all have in common? None of them can tolerate human activities in their breeding sites. Driving or walking on beaches during these birds' nesting seasons can cause eggs or young to be crushed, and mere entry into the endangered gray bat's maternity breeding caves can result in desertion. Human interference and disturbance during other critical times (roosting, hibernating or feeding) can also be severely detrimental to certain other wildlife.

The Game and Fresh Water Fish Commission gives these species a helping hand by closing selected areas to human entry during especially critical periods. A rule providing for establishment of "critical wildlife areas" was passed last October by the Commission.

Establishment of a "critical wildlife area" is by official action of the Commission, upon recommendation of a wildlife biologist and at the request of the landowner. The area is then posted with the dates of the critical period stated.

During such times, entry by any person into these areas is prohibited by law. The operation or use of a vehicle or entry by any person into the area constitutes molestation, and is punishable by as much as a $500 fine and/or up to 60 days in jail.

The Commission can not protect these species without your help, since the establishment of critical wildlife areas can usually only be done at the landowner's request. If you would like to prevent human disturbance of sensitive wildlife habitat on your property or report any illegal entry into critical wildlife areas, please contact your nearest Commission regional office. —*Melode Floyd*

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Gathering moisture from wet spot on ground. James C. Greene

Hardy Monarch

Migrating monarchs on goldenrod, northwest Florida coast. James C. Greene

It happens in late summer. There have been butterflies about during the preceding months, you recall, but suddenly you're aware of an unusually large number of orange and black monarchs. They cross the highway in front of your vehicle in a blizzard of color, they gather in conventions on seashore bushes and they're noticeable in their constant southward passing well out over the waters of the Gulf. The seasonal migration is on.

The monarch is the only butterfly that regularly migrates southward to pass the winter months in more favorable climes. The monarchs from the western part of the country migrate to California to overwinter, while our eastern ones make the long flight to central Mexico.

In certain favored canyons in the mountain fastness of Michoacan, the monarchs gather by the millions. They overwinter there in a state of suspended animation. When the weather moderates in early spring, usually March, they begin to stir about.

They mate and soon start on the trek northward, some going as far as southern Canada. On the way, females deposit eggs on milkweed plants, the only food of the larval monarch. The pale green eggs hatch in three to five days.

After the usual butterfly cycle, which sees the caterpillar metamorphose into an adult, and a period of intense foraging, the new crop of monarchs stands ready for the signal to begin the long trip south. It starts as early as August in the northern part of their range and by mid-September is conspicuously well under way in our part of the world. *-Morrie Naggiar*

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